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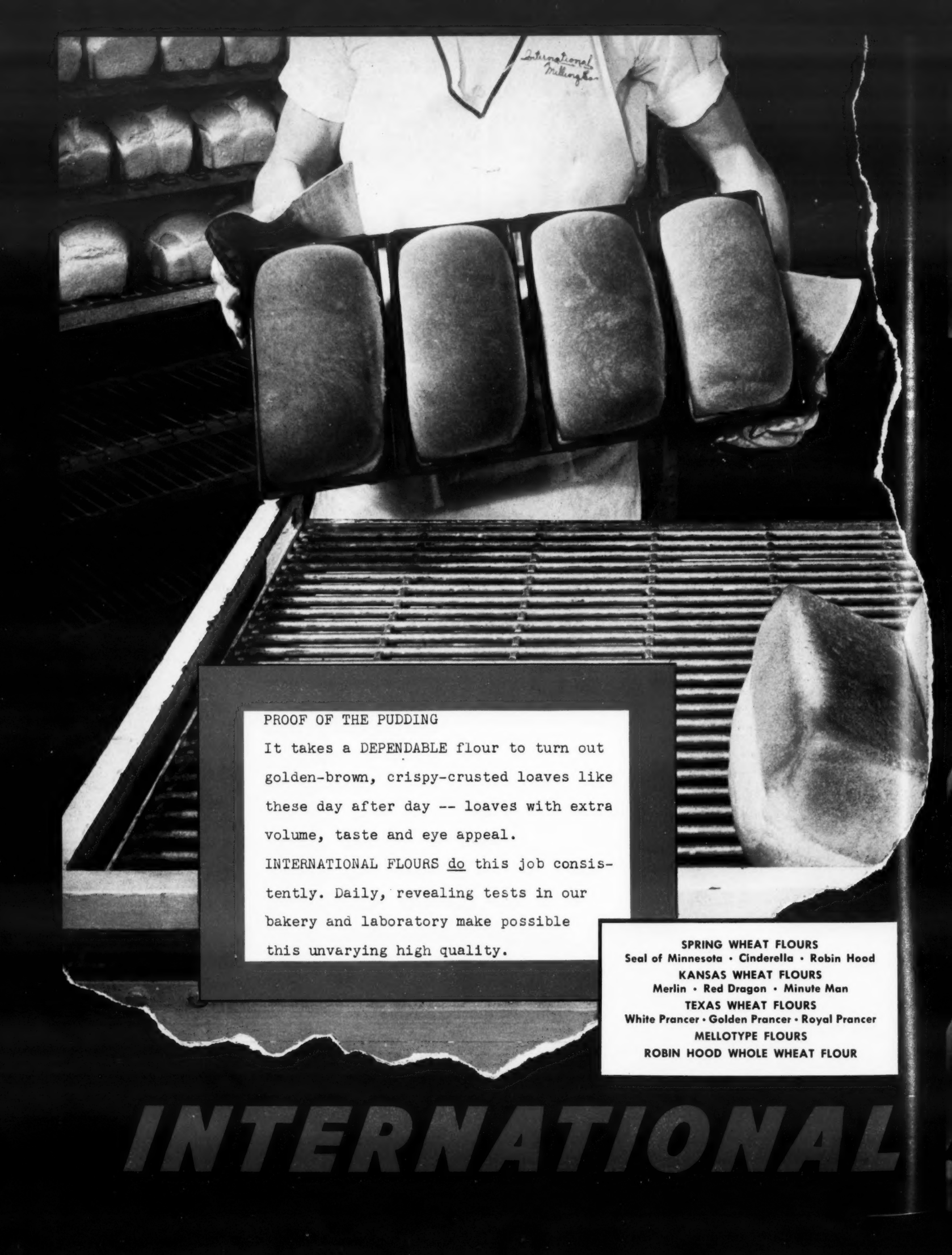

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It was an American who said: **"PICK OUT THE BIGGEST ONE AND FIRE!"**

Through the darkness of a night in the Solomons in 1942, a spotter on the United States light cruiser *Boise* discovered several enemy ships to starboard. . . . "How many ships have you spotted?" asked Capt. Edward J. Moran (better known as "Mike"). . . . "I have five in sight, sir." . . . "*Pick out the biggest one and fire!*" ordered Capt. Moran. . . . About four minutes later the "biggest one" went down. Within half an hour, five others followed her to the bottom. Two hours after that, the badly-battered *Boise*, given up for lost by her own fleet, crept back into position in her column. . . . Note to the Axis: There are *millions* of men in the American fighting forces with the Mike Moran brand of courage and determination!

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General Offices: Minneapolis, Minnesota

A Project for Consideration

Commercial Feeds and the Colleges

By Harvey E. Yantis

I THINK it is appropriate at a meeting of the Association of American Feed Control Officials to make some remarks about the value of co-operation and the understanding of others' purposes and viewpoints, particularly in connection with all of the many components that go to make up agriculture.

For about three and one half decades this group and the American Feed Manufacturers Association have furnished an example of what reciprocity of opinion and action can accomplish toward reaching a mutual objective, even when at first thought, there might seem to be some conflict of interests. There has been no tendency on the part of either organization to go around with a chip on its shoulder, refusing to anticipate, discuss and compose differences of opinion. The result has been to encourage and stimulate the use by the nation's farmers of high quality feeds, of rations soundly balanced to meet the specific requirements of maximum food production. The opportunity to speed the practical application of scientific findings in the field of animal and poultry nutrition has been enhanced by the attitude of mutual understanding consistently exhibited by these two associations. A larger degree of farm prosperity, based on more efficient and more economical production of meat, milk and eggs also has resulted, and that, in final analysis, is the principal goal toward which all parts of the agricultural machine are striving.

Feed control work, I think, has been outstandingly successful because it has been conducted on the whole with intelligence and reason. There has been no general tendency to play the part of a tough policeman with a big club. Instead, the policy has been aimed at protecting not only the feeder, but also the worthy feed man against those chiselers and incorrigibles whom we always seem to have with us in any industry or activity.

I think that there is a lesson in the relations of these two organizations that might well be studied and applied elsewhere within the field of agriculture. It is especially timely to consider this now, for it partly has been a lack of co-operation and understanding between groups that has made it difficult to meet the emergencies in feed supply and food production which have developed during the past year, and which still threaten.

Present day agriculture is not just farming. The feed industry is a part of it, as are agricultural experiment stations and colleges, the extension service, the feed control officials and the Department of Agriculture. There are many others that should be included, of course, but to limit my theme and discuss it more concisely, I am considering only the relationships of a few of these groups.

There is only one excuse for the existence of any of the classifications named, and that is to further the efficiency and output of the nation's agriculture. In this sense they all have the same job. All of them are trying to achieve the same thing. It should be obvious that the easiest and most efficient way for them to accomplish their common task would be for each one to be informed thoroughly as to what the others are doing and can do, and then to co-ordinate all of the activities and work together without friction.

In my observation this has not been

(Continued on page 27.)

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EDITOR'S NOTE.—*Mr. Yantis, who is a member of the editorial staff of* THE NORTHWESTERN MILLER, *and editor of this journal's junior publication,* FEEDSTUFFS, *delivered the accompanying address before a recent meeting of the Association of American Feed Control Officials in Washington, D. C.*

★ ★ ★

an idea for advertising YOUR V-90 Self-Rising FLOUR!

WHY not a timely Christmas "sales promotion" for your V-90 self-rising flour? Win new customers... get the old ones to do more baking... with this appetite tempting advertisement. Run it in the newspapers... in the towns where you want to get more business. Tell retailers to paste reprints in their store windows. Make it a real "promotion" campaign.

"Christmas Cookies" is the third of a series showing Mrs. Housewife the many *different* oven delicacies she can bake with your V-90 self-rising flour. Last month we had an ad featuring "a short cut to yeast rolls"... before that an ad on "Golden Glow Cake." Others will be available in the near future.

Get started now by sending for newspaper mats... one for each paper in which you would like to advertise. They'll be sent to you promptly without charge... just another Victor service to help you sell more flour.

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Recipe—
Cream thoroughly ½ cup shortening and 1 cup sugar. Add 1 egg and beat well. Add 3½ cups *sifted self-rising flour* alternately with ½ cup milk and ½ tsp. vanilla, mixing thoroughly after each addition. Roll out the dough on a lightly floured surface to ⅛" thickness. Cut with specially shaped floured cookie cutters. Sprinkle with sugar if desired. Bake on lightly greased baking sheets in a moderate oven, at 350° for 15 minutes.

so good... so easy to bake with self-rising flour!

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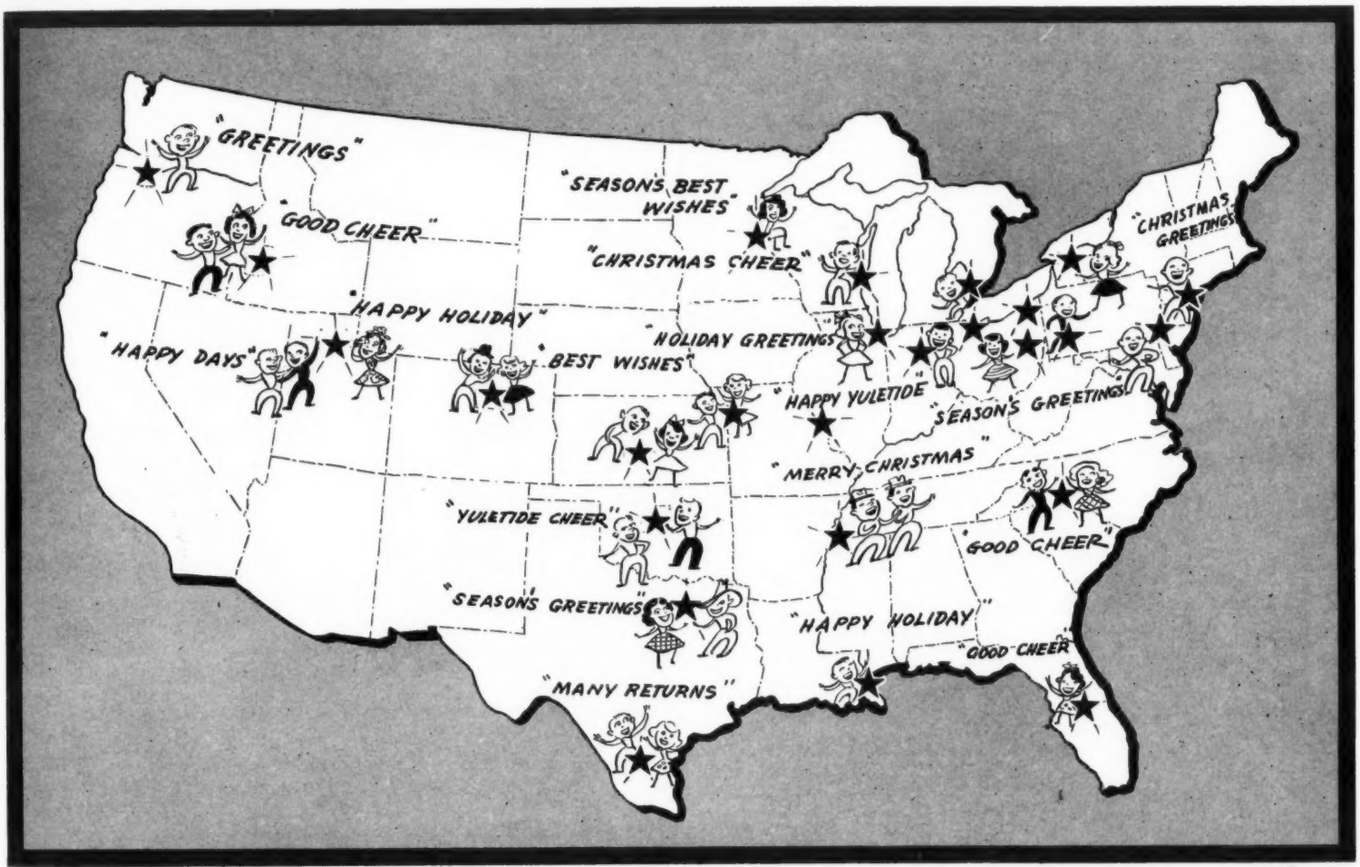

A Merry Christmas

FROM

THE 27 OFFICES AND FACTORIES OF THE

CHASE

BAG COMPANY

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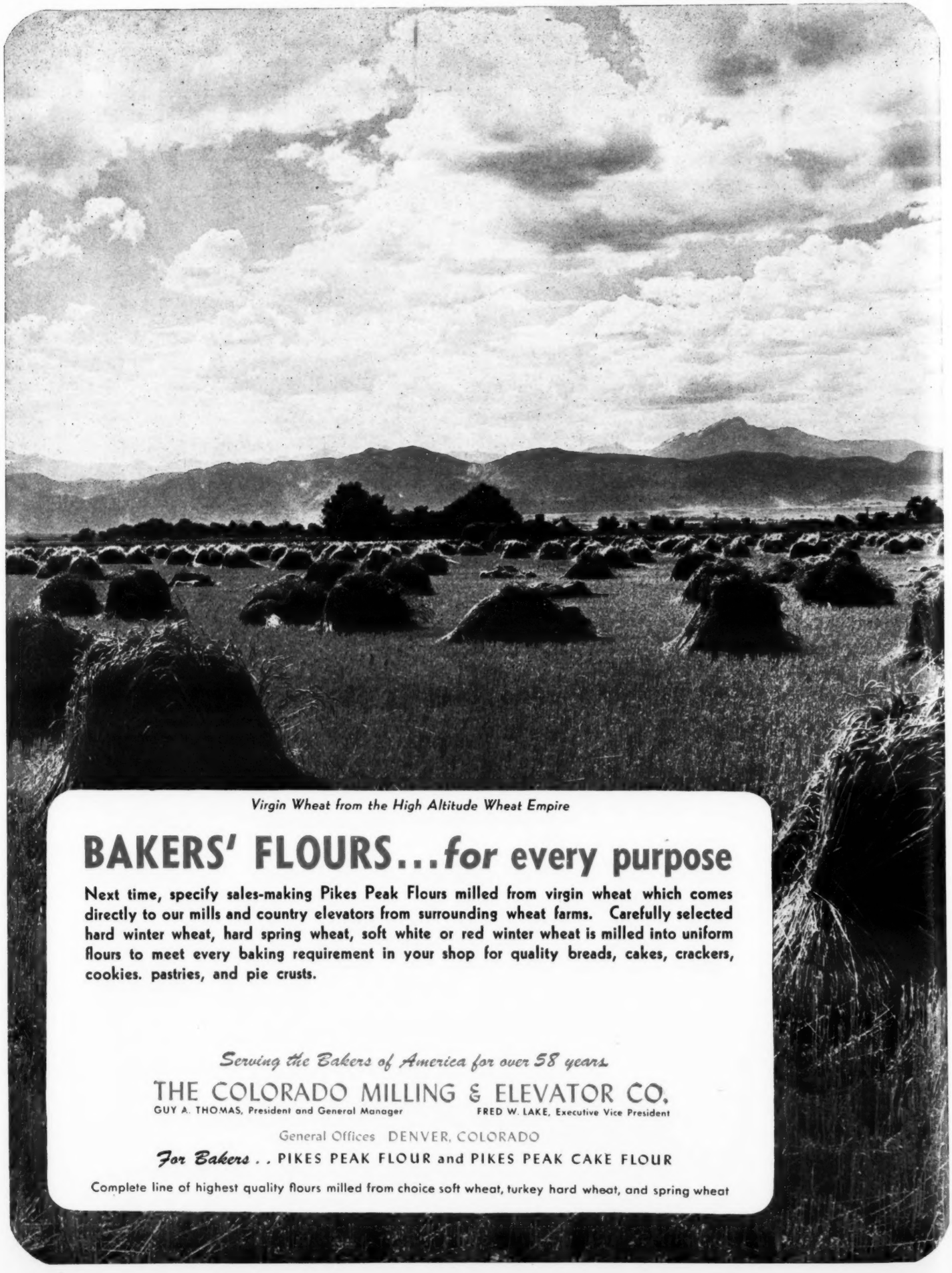

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POLAR BEAR FLOUR IS KING

Polar Bear Flour is courteous to every high quality competitor but yields to none of them.

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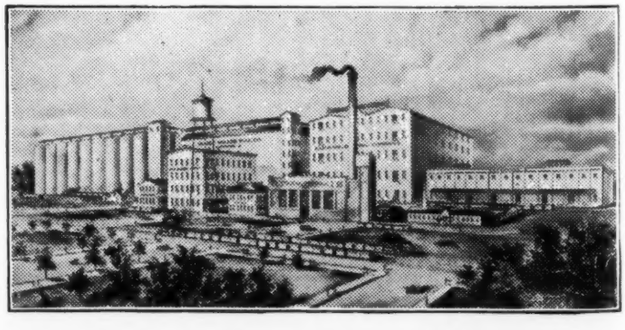
All our leading patent flours are now optionally available enriched with Vitamin B_1, Niacin, Iron and Riboflavin to the levels required by the Food and Drug Administration.



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Millers of Hard and Soft Wheat Flour
DAILY CAPACITY 2,100 BARRELS

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Milled in Minnesota for Over 40 Years
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Selected hard and soft milling wheats for any blend

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WHEAT—CORN—OATS—FEED GRAINS

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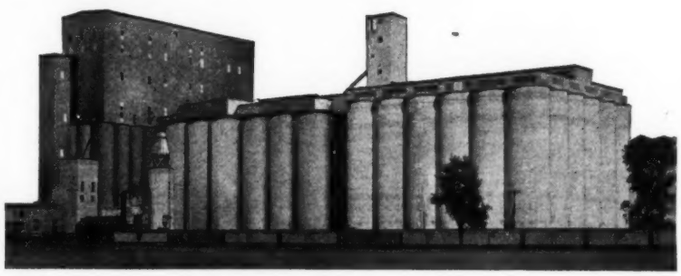

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Capacity 10,200,000 Bushels

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LITTLE PRINCESS

AIRY FAIRY

DIXIE DREAM

THREE MILLION WOMEN, gone into war time industry, now eagerly buy your bakers cakes and sweet goods. Other millions, handicapped by rationed ingredients and the pressure of busier days, have given up home baking and discovered anew the delicious, satisfying goodness of your bakers skill.

Larabee's cake and "special purpose" soft flours help you to please . . . and hold these new customers for keeps . . . when the pressure of war time activities and rationing will be relaxed. Never again need they work long weary hours to bake the home made cakes and pastries, now that they've found the answer to their families "sweet tooth" in the bake shop and on the grocery display rack.

Larabee cake and "special purpose" soft flours are milled by specialists. Their high standards of uniform quality are known to two generations of bakers who have built sound consumer demand on fine cakes and sweet goods. They will continue to help you keep more satisfied customers, during and after the war.

Ask your Larabee representative to tell you all about these special Larabee cake and pastry flours that meet your baking needs.

LARABEE FLOUR MILLS COMPANY
KANSAS CITY, MO.

DIVISION OF

COMMANDER-LARABEE MILLING CO.
GENERAL OFFICES • MINNEAPOLIS

A RETURN TO PRIVATE ENTERPRISE

★ ★ ★

LATIN-AMERICAN FLOUR TRADING FREED FROM RESTRICTIVE CONTROLS

Business of Domestic Mills in This Foreign Sector to Be Completely Restored to Open Competition Jan. 1, 1944— Total Shipments Still Under Corrective Measures

WASHINGTON, D. C.—(Special)—Movement of American flour to Latin American countries beginning Jan. 1 will be free of restrictive controls of the federal government, and the business of domestic millers with the trade there will be restored completely to open competition. This announcement was made here Dec. 4 by William T. McArthur, general manager of the Flour Millers Export Association, in communications sent to all exporting mills.

The change from a tightly controlled inadequate movement of flour to markets of the southern republics to restoration of business developed through private competition unhampered by federal restrictions was accomplished by the export association after 10 months of painstaking efforts. The new arrangement, however, is contingent upon the export association's continuing to exercise control over total shipments, and is to continue so long as the present shipping situation remains favorable and adequate ocean tonnage is available.

The switch over from government allocation of space for flour movement to Latin American nations to what is described as a complete return of the business to private enterprise was not accomplished without energetic work by Mr. McArthur and his associates in the export association, who have worked diligently and long with Washington officials in their attempt to preserve to American mills this natural market for domestic foods. These attempts to reach an agreement with the federal authorities by which American business in flour could be relieved of the uncertain and unsatisfactory allocation system on shipping space reached a head in October at the annual meeting of the export association at Chicago, where the subject was explored to the exclusion of all other problems.

Out of that meeting the exporters developed a direct request that the exportation of flour to Latin America be left to private commercial channels. This desire was expressed in the following resolution which Mr. McArthur and A. E. Mallon, president of the association, submitted to the Office of Foreign Economics Warfare:

"The Flour Millers Export Association appreciates the co-operation it has had from the Office of Economic Warfare in endeavoring to perpetuate private enterprise in Latin America.

"The association approves the principles involved in allocation of shipping space when such was in short supply as well as the procedure for filing applications by an association for its members as outlined in current export bulletin No. 84. It likewise approves the policy of liberalized handling of commodities in free supply for export announced in current export bulletin No. 124.

"In view of the substantially improved and anticipated adequate shipping situation, however, it is the recommendation of the association that the present method of filing BEW 138 applications in blank be changed to filing such applications in specific amounts, such amounts to be ascertained by totaling the shipping directions of each member for each country monthly.

"The general manager under such procedure will be responsible for the proper stocking of flour in each of the 15 countries involved. He shall have authority to scale down members' requests for space, if in his considered judgment, overstocking of any country with resulting demoralization of the market might result from compliance with such requests.

"The members of the association remain bound by their agreement to make shipments only to consignees approved by the Office of Economic Warfare.

"The association further recommends that the same procedure be followed by the Canadian National Millers Association."

In affirmatively acting on the association's resolution, C. Victor Barry, chief of the Office of Economic Warfare of FEA, took occasion to commend the exporters for co-operating so fully in complying with the restrictions which the tight shipping situation—now relieved—forced the government to impose.

"We in the office of exports," Mr. Barry's letter to Mr. Mallon said, "have carefully observed the progress of your association's effort during a most trying period and hope that you will convey to the association membership our appreciation of its successful co-operative effort. It seems to us, now that the rigorous period of shipping shortage has passed, that we can look back upon a job well done and forward to a period of market development that should have positive effect on the future of the flour milling industry.

"In accordance with the request submitted by your association, we will modify the flour export procedure as set up in current export control bulletin No. 84, March 15, 1943, to the extent that your association may, beginning with the shipping period Jan. 1, 1944, submit monthly BEW 138's with total tonnage specified. It is understood that total tonnage specified will represent the total of all members' current shipping direction.

"In the event that the supply situation or the shipping situation changes drastically, it is hoped that we may revert quickly to the former procedure outlined in bulletin No. 84.

"We are proposing, through the Canadian legation, that the Canadian National Millers Association also terminate the present arrangements and follow the procedure as outlined in paragraph 3 above, effective Jan. 1."

The export association, which already has filed applications for January shipments, regards the government's action as scrapping the old unsatisfactory formula of allocation and the headaches this plan involved, and substituting therefor the straightcut business method of wide open competition between mills. The association believes that when space is controlled by legitimate sales and shipping directions the problem of multiple buying, as well as multiple shipping directions and speculative operations, will disappear in the 15 foreign countries which provide the American markets. The new scheme, it is believed, will ultimately shut out Argentine flour, the chief competitor to American mills, but mills are cautioned not to attempt to develop new business in countries where their flour has not been shipped in the past. If a wild scramble for new business is resorted to by the mills, the apple-cart will be upset and 10 months of effort to accomplish the new program will have been wasted, food shipping authorities here believe.

Then, too, the uncertainties of war must be considered by exporting mills, especially as they relate to the possibility of resumption of underwater activities by Germany, plus the possibility, which is ever present, of a shortage in the supply of flour, as the United States is the one country toward which other nations of the world must look to for food. In some circles in Washington, it is understood, there exists the thought that a time may come when some controls on food exports should be made. If this control should take the form of War Production Board priorities, any new business developed in South America by flour mills may be found at the bottom of the heap.

Another possibility to which attention is drawn is that steps may be taken by Latin American countries to control imports. Relaxation of export controls by the United States may very well spur countries other than Ecuador, Colombia and Nicaragua, which already have import controls, to devise some system of controlling flour moving in. Domestic exporters, however, have gone a long way in getting this governmental hands-off policy and, with a determination to continue the control within the industry of shipments to Latin America, the way seems now open for complete and permanent perpetuation of these markets to domestic mills.

Officials here believe that the arrangement just announced will be agreeable to Canadian mills and that through the Canadian National Millers Association the same procedure will be followed by them.

—BREAD IS THE STAFF OF LIFE—

VAN DE KAMP'S DIVIDEND

LOS ANGELES, CAL.—The board of directors of Van de Kamp's Holland Dutch Bakeries, Inc., voted a dividend of 35c a share on the common stock, payable Dec. 20. This brought 1943 dividend payments up to 80c. Dividends in 1942 totaled 60c per common share.

Any Jobbers Still "Squeezed" May Apply for Local Relief

CHICAGO, ILL.—An important clause has been added to MPR 296, permitting regional OPA administrators to make adjustments in l.c.l. mark-ups, Frank T. Herbert, president of the National Association of Flour Distributors, points out in a bulletin to members.

Sec. 12 of MPR 296 provides: "The administrator or any regional administrator as to delivery points within his region, may make adjustments downward or upward to a maximum of 50c per cwt in the amounts set forth . . . to be added to the maximum carload prices."

Mr. Herbert points out that those areas which feel "squeezed" or require adjustments may appeal to the local regional office for relief.

Increased mark-ups were granted for l.c.l. business in two classes of cities. The National Association of Flour Distributors endeavored to obtain the maximum mark-up for the entire country but unfortunately mill branch offices and distributors did not supply sufficient information to establish this figure as their historical mark-up. As Mr. Herbert pointed out, however, local injustices may be taken up with regional price administrators, although justifying evidence will have to be presented in order to obtain any change.

Revised MPR 296 makes these changes:

The l.c.l. delivery lots have now been changed to 250 cwt and less, instead of 55 bbls, as heretofore.

Three areas have been established: Area A includes the metropolitan market area districts of New York City, Chicago and Philadelphia. Area B includes the metropolitan marketing area districts of San Francisco, New Orleans, Milwaukee, Detroit, Cleveland, Baltimore, Washington, St. Louis, Boston, Pittsburgh and Cincinnati.

For deliveries at mill door, mill warehouse or distributor's warehouse, the following may be charged above ceiling prices: 25c cwt in Area A, 20c cwt in Area B, 18c cwt in all other territories. Heretofore the permitted mark-up for this type of business was 35c bbl in all areas.

For deliveries to customers the following may be charged above ceiling prices: 50c cwt in Area A, 43c cwt in Area B, 33c cwt elsewhere.

Mr. Herbert emphasized that all mark-ups are to be added to mill carload ceiling prices, and that "if purchases are made below the mill ceilings, the mark-ups can still be added to the mill price ceilings."

Grain Controls Built On $1.16 Corn

BARLEY AND OATS FROZEN IN PRICE MOVE

Feed Wheat Increased 20c Bu as Government Acts to Bring Feed Costs Into Line—Hard Wheat Ceiling Expected This Week

WASHINGTON, D. C.—(Special)—Around a new basic corn price of $1.16 bu, Chicago, the government is weaving a series of integrated controls, a number of which were announced last week, with others to follow as rapidly as OPA can prepare the details.

The corn order MPR 346 has been revised completely with county by county ceilings spelled out to reflect farm parity as required by the Emergency Price Control Act. At the same time prices for oats and barley are frozen at the highest prices prevailing for the period from Nov. 29 to Dec. 3, 1943, pending the issuance of a permanent regulation over these commodities within the next 60 days. Geared to these measures are temporary sorghum grain ceilings at approximate parity levels at the following basing points: (milo, kafir, durra, feterita and sorgo) $2.38 cwt, Kansas City, $2.42 at Texas common points, and $2.76 at Los Angeles and San Francisco. Ceilings for the other marketing points are determined through application of normal differentials between these basing point cities and other markets.

Hard wheat and hay ceilings will be announced on a national basis this week and would have accompanied the corn order revision if OPA had been able to handle the work at that time.

At the same time that OPA made its moves to adjust the grain prices, WFA joined in other corrective measures which will bring certain CCC operations into conformity with the new OPA regulations. CCC subsidy payments on corn moving into the deficit feeding areas are dropped with the dairy feed subsidy payments supplanting this device.

After Dec. 6, 1943, the price of feed wheat will be advanced 20c bu to bring this commmodity in line with new corn parity of $1.16 Chicago as expressed in the revision of the corn order.

During the month of December, CCC will purchase corn at old OPA ceilings in those counties where the revised corn order has reduced legal maximums.

The hub of all these government moves was the new corn price which was the object of dispute betweeen OPA and WFA and had to be referred to OES for settlement. It may be recalled that when Chester Bowles first came to Washington he announced that the new corn price would be $1.10. The decision at the $1.16 level is evidently a WFA victory, according to observers here.

Prior to the announcement of the new grain price program, WFA quietly moved to reduce hog support prices during the month of December in the states of Washington, Oregon, Wyoming, Montana, Idaho, Utah, North and South Dakota. In some instances the support price reduction runs as high as $1 cwt for 200- to 270-lb hogs in the Portland, Oregon, market.

WFA meat officials say that these reductions, which were ordered by telegraphic instructions and unaccompanied by formal announcement, do not indicate a repudiation of the government's guarantee but are merely corrective adjustments to permit hogs in local market areas to move. It was pointed out that in Portland, Oregon, the previous support price of $14.75 cwt was unrealistic because Nebraskan hogs were able to be sold profitably in that market at $14. Under those circumstances WFA officials say they had no alternative but to reduce support prices so that local hogs could be sold. Similar price irregularities prevailed in the other markets where the reductions in support levels have been ordered.

The total effect of all these actions is seen as an effort to adjust the hog-corn ratio to a more equitable basis, to prevent further advances in substitute feeds and to make it profitable to sell corn to the feed deficit areas. WFA plans to allocate the oil seed meals must be considered an integral part of the overall program.

Whether this belated move to adjust an obvious basic error in the government livestock-grain-feed program will have the desired effect remains to be seen as both government officials and trade representatives cannot agree among themselves on the final result.

One hard-headed government official is openly doubtful that corn will move, citing the strong financial position of farmers in the corn belt and the probable continued heavy demand for hogs and all other foods for some time ahead. This government representative says that in his opinion the farmer will hold his corn at least until some time next year, particularly if corn sales now would increase the farmers' 1943 tax bill.

Grain trade spokesmen are speculating on the possibility that wheat movements may freeze up, arguing that the wheat grower, having seen the price incentives made by the government to the corn belt with the ceilings increased from the original $1.02 Chicago base to $1.16 within a year, may decide to hold wheat for similar price incentives.

Government officials will await the reaction to the new integrated controls with some anxiety. As the news of reduction in support price levels for hogs spreads there may be a rush to market these animals based on the fear that the government may generally lower the hog support price. If that should develop on a consequential scale, packing plants already taxed to capacity to process animals, might be swamped and unable to handle further runs. Aside from the inherent danger to the hog price level a wide-scale slaughter of hogs this winter might unbalance the government oil seed-feed and livestock program to a condition where we would have a glut of protein next year and a severe shortage of meat. That danger was pointed out early last year by James McConnell, of the Feed Industry Council.

Government officials say that the issuance of the hard wheat and hay ceilings has been delayed only because OPA was unable to handle all the work involved at one time. Both actions have been discussed from every conceivable angle and it is unlikely that any important topic will arise now to prevent their issuance this week.

—BREAD IS THE STAFF OF LIFE—

FIRE DESTROYS CORN DRYING PLANT

ADA, OHIO.—Loss from fire that recently destroyed the corn drying plant of J. R. Spahr, a leading hybrid corn grower near Ada, has been placed at more than $30,000. Origin of the blaze, which destroyed 7,500 bus of seed corn, drying equipment and buildings, has not been determined.

WFA PROTEIN PLAN MEETS OBJECTION FROM FEED TRADE

WASHINGTON, D. C.—Sharp issue with the government's proposed plan for exerting drastic control over sale, shipment and inventories of protein meal and the use of soybean products—as contemplated by Food Production Order No. 9, Revision No. 3—was taken by a majority of the witnesses who laid their cards on the table at the open hearing under WFA sponsorship in Washington Dec. 2.

The hierarchy of the agricultural war food set-up, from WFA Administrator Marvin Jones on down, were present at the opening of the lively session, but from only one of these official controllers, John B. Hutson, WFA director of food production, came any indication that the government was dead set on arbitrarily establishing the controls so vigorously opposed by most non-government spokesmen.

★ ★ ★

Hutson's thesis was that voluntary industry control had failed and government action was necessary to distribute the tragically short feed supplies equitably. While the vexatious subject was still under discussion, Director Hutson issued a set-aside order requiring processors to earmark 20% of their January production of oil seed meal for distribution into areas to be designated by WFA. In announcing the order, Hutson requested voluntary co-operation of oil seed processors in making protein meal available for directed distribution during December, promising credits against the January 20% set-aside for all who participate.

Frank E. Boling, vice chairman of the Feed Industry Council, set the opposition to arbitrary control by government order in motion with a statement urging continuation of the voluntary approach to the problem. "We feel," he said, "that much was gained from the voluntary protein sharing program drawn up last spring. When a gap exists between feed requirements and feed supplies, no program can completely close it up, but voluntary action helped greatly to narrow the gap and brought better utilization of all protein ingredients." "It is the judgment of the feed council that the priority given growers of soybeans and cottonseed in this proposed order will freeze the meals in the areas of production and further disrupt the flow of these materials to feeders of the whole nation," he declared.

Austin Carpenter, director of the Eastern Federation of Feed Merchants, emphasized the good job done by the industry in conserving protein feeds during the past year and held that the proposed order would "come nearer wrecking the conservation program than any other means."

"We are not in favor of any part of this order," Mr. Carpenter said. "The responsibility for the tragic feed situation today lies in the OPA pricing system, which is unworkable and stops the free flow of protein concentrates. The feed industry has done a capable job in conserving and distributing feeds and any assumed maldistribution will not be corrected by this order. The 15-day inventory limit is just too ridiculous to consider. It never has and never can operate successfully and will cause a pathetic series of liquidations of stock.

"The whole order is just a hell of a mess," he concluded.

Another New Englander, J. Morrell, speaking for the feed dealers and manufacturers of Vermont, disagreed with Mr. Carpenter, and said he was for the order as a means of applying a safety valve to indiscriminate distribution of protein feeds.

Colin S. Gordon, OPA grain section chief, said that business and government made up the greatest wartime team in co-operatively solving food programs, citing the mixed feed regulation as one example.

"This order," Mr. Gordon said, "is the fairest ever written in Washington in the last two years." He added that OPA was intent on a policy of conferring with industry before further orders are written, and indicated that the corn order blunder would not be repeated in the controls over oats, barley and grain sorghums, which he said were reaching parity and would be stopped there.

DURUM MILLERS HOLD OFF SALES AS SUBSIDY PROVES INADEQUATE

Six Cent Rate Too Low to Provide Sufficient Milling Return—Probably Will Ask Defense Supplies Corporation for Larger Payment on Durum

MINNEAPOLIS, MINN.—Confronted with what is regarded as an inadequate subsidy payment on durum wheat, semolina manufacturers are not selling their products under the Defense Supplies Corp. program.

Either the semolina and durum flour price ceiling will have to be raised or the subsidy on durum wheat increased before business can be resumed. Since the flour price ceiling change involves many other considerations, it is thought that a subsidy revision is more likely to be obtained and to be more in line with the whole program. Consequently durum millers probably will make an application for a higher subsidy on durum wheat.

A 6c bu subsidy was provided on durum flour, as compared with 16c bu on hard wheat flour. Semolina price ceilings are some higher than bread flour, being $3.52 sack, bulk, for standard semolina and 10c more for fancy grades. This compares with $3.18, bulk, for straight bread flour.

However, as compared with a straight bread flour, durum millers obtain only about 75% of semolina and the remaining 25% clears and other flour that commands a comparatively low price. Durum clears consistently sell at substantial discounts below bread wheat clears and the outlet for them is restricted and sporadic. So that the 34c difference in the ceiling price by no means makes up for the 23c sack smaller subsidy that durum millers obtain.

Added to the durum millers' difficulties is the fact that, when the semolina price ceiling was set originally, it was possible to buy durum with a high moisture content at a discount. While this wheat was unfit for storage, it could be milled immediately and this helped out in operations under the flour price ceiling originally. Now, however, such wheat is no longer available. Coupled with that has been a steady advance in durum wheat. Top milling grades are very little, if any, below bread wheats and the strong feed wheat demand has shortened the discounts for lower grades until there is now only a 2@4c spread which gives the miller practically no chance to vary his wheat mix.

Millers are hopeful that the Defense Supplies Corp. officials will understand these differences between durum and bread wheat milling and make an adjustment in the rates of subsidy. A mill of given capacity can produce more bread flour than semolina and durum flour so that, on the basis of overhead and investment, durum millers feel that they certainly should be entitled to as much of a milling return as bread wheat plants.

Most macaroni manufacturers are well covered on the future needs, so the durum "squeeze" is not a matter of immediate importance to them. However, there are some buyers who did not book ahead when they could have done so, feeling that the subsidy would bring a drop in prices.

40 Mills Share FDA Purchases

WASHINGTON, D. C.—(Special)—Forty mills participated in the wholesale selling of compressed and non-compressed enriched hard wheat bakers flour and Pacific export straights which the government purchased over the week-end, totalling in all 166,080,000 lbs.

Originally FDA sought 80,000,00 lbs of bakers flour for delivery to east coast ports under announcement 1744. Thirty-two unidentified mills offered 139,540,000 lbs when the government indicated Russia's needs for that quantity. Eight mills on the west coast, from whom bids were sought for a total of 80,000,000 lbs of export straight, made commitments for delivery of a total of 26,540,000 lbs.

At the same time, FDA acquired 560,000 bus of No. 1 dark northern spring wheat and No. 1 hard winter wheat, supplied as follows:

Ullmann Grain Co., 150,000 bus delivered to Philadelphia or Baltimore at $1.96⅞ bu, or $1.97½ f.o.b. New York City.

Cargill, Inc., 160,000 bus, delivered at Baltimore for $1.98¾ for $1.99 laid down at Philadelphia, and for $1.99¾ at New York City.

Leval & Co., 150,000 bus, delivered New York City at $1.99½.

Offers for 22,400,000 lbs of rye flour are scheduled to be received Dec. 8 for acceptance Dec. 9, under announcement 1759, which provides for packaging in 100-lb net single cottons equal or better to 36-inch 2.35 yard osnaburg or 40-inch 2.05 osnaburgs, with delivery to both east and west coast ports.

FDA officials indicated that continued purchases for Russia account would depend upon the available tonnage, and that the intention was to contract for such quantities which mills could promptly deliver if ships were available.

It has been tentatively agreed between the government purchasing agencies that the army will buy flour required for the initial distribution in liberated territory, with subsequent shipments being purchased under the lend-lease arrangement through FDA. FDA also will continue to handle purchases for Caribbean destinations and for Hawaii, with the bulk of the lend-lease flour being destined for Russia.

Only a few of the mills which offered flour in the purchases made since Dec. 1 included in their offers a provision that subsidy payments would be guaranteed by FDA. The agency declined to take this responsibility and required the offering mills to delete this stipulation from their offers.

AVERAGING OF RATE OF SUBSIDY ON DIFFERENT WHEATS PLANNED

Payment on Two or More Wheat Types Will Be at Single Figure Weighted by Mill Grind of Each Type—DSC Forms Awaited

While selling under the subsidy program, millers still are awaiting more complete information particularly on the accounting procedure and they are watching for release of reporting forms to be used by the Defense Supplies Corp.

The general method of procedure is outlined by Herman Fakler in a bulletin of the Millers National Federation as follows:

"All mills will be required to register with DSC on forms. Until forms are received, there is nothing the miller need do in this connection. At that time millers who ground less than 110,000 bus of wheat during the first 11 months of 1943 must elect whether they will go on a straight grind basis. Other millers, as well as those who do not elect to go on a grind basis, will be required to report their total net forward sales position at the close of business on Nov. 30, 1943.

"Now, let us assume that a miller located in the Middle West is grinding soft, hard, and durum wheats, and has a net forward sales position. The equivalent amount of this forward sales position will be deducted from his current grind, beginning Dec. 1, before he begins to receive subsidy payment. He must, however, report his grind each month in order to receive credit for it against original forward sales position. By his current new sales beginning in December he establishes his right to receive payment on his subsequent grind at the rates in effect at the time the flour was sold. At the end of the program he will be entitled to payment on his grind within 120 days after termination up to the amount deducted on account of his original net forward sales position or the amount of his forward sales at the date of termination, booked after Nov. 30, whichever is lower. These amounts will be determined in accordance with paragraphs (d) and (e) of Section 6 of DSC Regulation No. 4.

"If, however, his net forward sales position at the end of the program is less than his net forward sales position at the beginning of the program, he will be paid on only the amount of wheat required to fill his closing net forward sales position.

"A general rule to be followed in this connection is that a mill having a net forward sales position of not to exceed 120 days' grind at the beginning of the program, will at the end of the program be paid on a closing net forward sales position of no more than the same amount at the rate in effect at the time the flour was sold.

FIRST-IN FIRST-OUT

"It should be noted that the first-in first-out rule is followed throughout, and when the subsidy is paid the different rates applicable are weighted in accordance with the actual grind of the various kinds of wheat, a weighted average rate of payment is determined, and this average rate applied to the total number of bushels of all kinds of wheat eligible for payment. It should be noted that this same weighting of total grind is employed in any month in which two or more rates are applicable to the grind in that month, and the weighted averages applied to the total number of bushels of all kinds of wheat eligible for the different rates of payment.

"Deductions for contract cancellations will be handled in the same manner, and the weighted average rate for the month in which the flour was booked or in which the contract was canceled, whichever is higher, will be used.

SUBSIDY TERMINATION

"In view of the uncertainty of the life of the flour payment plan because of legislation pending in Congress, we have had quite a number of inquiries as to what the position of mills will be if the program had to be terminated on Dec. 31, 1943, for example. We have discussed this possibility with officials of DSC and are in position to reflect their interpretation, which we will have confirmed in writing.

"Keep in mind that the basic objective of the program is to make payments on the actual grind, or its equivalent, during the life of the program. We can visualize how this will work for a mill which elects to go on a current grind immediately or for a mill which has no net forward sales position at the beginning of the program. It is a little more difficult to understand the position of a mill which still has an unfilled net forward sales position, booked before Nov. 30, when the program ends.

"In order to illustrate the situation confronting the latter mill, let us assume the mill has a net forward sales position of 100,000 cwt on Nov. 30. During December 40,000 cwts of flour are ground, 40,000 cwts of flour are sold, and the program is terminated on Dec. 31. At that time the miller still has 60,000 cwts of flour in his original net forward sales position and he has made new sales of 40,000 cwts on the assumption he would receive the subsidy when these sales are ground out. In such a case DSC will pay the subsidy at December rates on the subsequent grind equivalent to the sales in December if this equivalent grind is produced within 120 days after Dec. 31.

"Assuming a yield of 2 bus per cwt in December, this would mean that payment would be made on 80,000 bus of wheat, the actual grind in December required to produce 40,000 cwts of flour. If in the subsequent grind it happens to take more than 80,000 bus of wheat to produce 40,000 cwts of flour, payment will be made only on 80,000 bus. It is important to keep this in mind because payments are to be made on the actual bushels of wheat ground at not to exceed 2.35 bus per cwt of flour.

"In other words, applying the general rule previously stated, the miller's opening net forward sales position was 100,000 cwts, he ground out 40,000 cwts in December, and his closing net forward sales position was 100,000 cwts com-

posed of 60,000 cwts sold when the rate was zero and 40,000 cwts sold when the December rates were in effect on which the miller is entitled to payment.

"This emphasizes the necessity under present conditions of relating the amount of new sales in December made under the subsidy program to the actual grind in December. To sell more than is ground in December would be speculating on the payment of a subsidy on the excess of new sales. A miller, of course, can sell more if he chooses to do so, but so far as the subsidy is concerned he is running a risk and would have to be prepared to protect himself in some other manner. This same principle will apply if the program continues for two, three or four months."

Establishment of a weighted average payment figure, as outlined above, would mean that miller might not at all times be current in his receipts from the government if he is grinding more than one type of wheat. To the extent that such a miller's sales during a month varied in composition from that of his actual wheat grind, he might be either financially ahead or behind his true position. And if the subsidy should be terminated within a short time he might be permanently in that position. In theory, however, if the subsidy runs along for a sufficient length of time, these differences will even up.

The job of reflecting this new factor in cost accounting is providing plenty of work and headaches for mill offices this week.

COMPROMISE MAY CLEAR SUBSIDY; WHEAT CEILING DELAY WATCHED

Wheat Prices Creep Upward—Ceiling Tardiness May Bring Back Flour Price Squeeze—Quick Decision on Subsidy Permanence Sought by Both Sides

By EMMET DOUGHERTY

Washington Correspondent of THE NORTHWESTERN MILLER

WASHINGTON, D. C.—No new development in the wheat ceiling-flour subsidy picture appears on the Washington front. OPA officials continue their struggle with the pending wheat ceiling order amid considerable difficulty over the ceilings to be set at terminal markets. At the same time, a movement for compromise on the congressional opposition to food subsidies appeared to gain strength as the Senate banking committee started hearings on the House-approved bill which would prohibit such payments on foods after Jan. 1, 1944.

A move by Democratic leaders for a 60-day postponement of the Senate vote on the House bill struck a snag when Marvin Jones, WFA administrator, declared such a delay might create confusion and hamper the 1944 food production program. Mr. Jones said that Congress should decide at once whether the subsidy program is to be continued or abolished so that price control agencies and farmers could lay their plans accordingly for next year.

J. B. Hutson, president of the Commodity Credit Corp., seconded Mr. Jones' view and farm bloc leaders—supporting the subsidy repeal legislation—announced they would press for conclusion of the Senate banking committee hearings by Dec. 9 with a view to getting the bill to the Senate floor next week.

Meanwhile there was more talk of a compromise solution both from the opposition and the proponents of the legislation. It now appears possible that both might agree on a program whereby subsidies now in force would be retained but new ones be prohibited or some definite commodity and monetary limits be set.

There was no indication of any early announcement of the overall wheat ceiling. Allen Moore, chief of the OPA's flour section, declared at a meeting called by Senator Reed (R., Kansas), that recognition would be given in the ceilings to freight differentials and protein content of the wheat.

"The OPA," Mr. Moore said, "has no interest in the prices except that we want to be sure that the price of wheat in the United States will not be below parity. The United States average parity on the farm as of Nov. 15 was $1.48 bu.

"We are approaching the matter by setting up a flow pattern so that wheat will be marketed without disruption. The ceiling prices should be designed to make wheat flow, but not too fast."

Because of the freight differential between Chicago and Missouri River points, he said, the price at Chicago probably would be 9.9c bu higher than at Kansas City.

Senator Reed questioned the OPA's right to do that, asserting it would violate "a long established business practice of a differential of 5c bu."

"That will have the effect," he said, "of reducing the price of wheat by the difference between 5c, the present differential, and the 9.9c which you propose to substitute for 5c bu."

Proponents of this view would prefer the market differentials established in the CCC loan program.

Meanwhile the lack of a ceiling on wheat may soon bring about another "squeeze" on millers. With the wheat basis of the flour ceiling at Minneapolis, for example, presumably $1.43 bu, the addition of a 16c bu subsidy on wheat means that millers can pay an average of about $1.59 bu for wheat. Cash prices for desirable milling wheat are now ½c to 1½c above that figure, so that there already is a "squeeze." There has been a great show of strength in the futures market and weakness in cash wheat and protein premiums and the wheat market appears to be working toward the dead level basis which may prevail under a wheat ceiling.

Wheat for Feed Sales May Be Banned

WASHINGTON, D. C.—(Special)—Favorable action by WFA on the recommendations of the Wheat Conservation Committee of Millers National Federation for banning of sales of domestic bread grains for feed was indicated Dec. 7 when agricultural department economists expressed their opinion that the millers' requests were fair and justified. Definite decision by Marvin Jones, WFA administrator, however, is not expected to be taken until the equally troublesome problem of the shortage of feed grains and proteins has been worked out.

Meanwhile, Congress is scheduled to take up Dec. 8 the proposal of the House Committee on Agriculture for the suspension of the tariff on Canadian and all imported wheat, oats and other grains and feeds for livestock and poultry. Supporters of the plan to remove the tariff contend that government agencies have been operating on this basis and passage of the bill will place private distributors on a competitive basis with the government.

Grain Trade Moves Cautiously As New Orders Go Into Effect

KANSAS CITY, Mo.—With a ceiling imminent on hard wheat, the corn ceilings raised and a freeze order placed on oats, barley and sorghums, the grain trade is moving carefully in its operations here. Flour millers are selling a modest volume of flour and are extremely careful to cover all sales at once with cash wheat. As the result wheat is selling freely to millers, but it is quite obvious that all are attempting to stay at or below the $1.62 mark for cash wheat, generally accepted as parity for Kansas City.

Feed wheat is selling at 20c bu higher as the result of the order and it brings the ground product to $50.60 ton. After a few impulsive cancellations, buyers of feed wheat realized that this price still is well below other ground grains and sales resumed in fair volume, taking all offerings.

Corn sales are rather large, even though clarification of all the new rules still is awaited. Merchants are not clear on some of the regulations but are sufficiently confident so that orders are being taken and corn bought from the country. Oats, barley and sorghums are not selling freely as dealers study service charges which they are allowed and attempt to find out just where they are.

Major fear of the industry now is that new regulations might conceivably gum up other grains and not release corn sufficiently to take care of demand. However, it is apparent that some of the previous inequities are adjusted somewhat and in a week or so it is felt that the trade will be able to determine if the program even approaches doing the job intended.

Millers Adopt New Contract Clause to Insure Directions

Faced with new and unusual conditions under the subsidy, made additionally hazardous by the fact that Congress may yet put a stop to the payments, many flour millers are inserting a clause in flour contracts which governs shipping instructions that must be furnished by the buyer.

The objective of the clause is to protect millers in the event the subsidy is terminated abruptly.

Text of the clause is as follows:

"Price named herein is made possible under the United States government flour subsidy regulations and, notwithstanding any provisions to the contrary contained in this contract, it is expressly agreed that if the buyer fails to furnish seller shipping instructions for all the flour to be delivered hereunder within 110 days of contract date to enable seller to grind the requisite amount of wheat to make the entire amount of flour to be shipped hereunder within 120 days from date of contract, buyer shall pay seller, in addition to price per cwt specified herein, liquidated damages in amount of any federal subsidy upon wheat ground or to be ground hereunder to which seller would have been entitled if wheat required had been ground within 120 days from date hereof."

Under the subsidy program millers will be allowed only 120 days in which to grind the equivalent of their unfilled orders, when the subsidy program comes to an end. Under some circumstances it might be necessary for them to get shipping instructions within that period for practically all of their unfilled orders in order to meet this provision of the regulation.

Flour buyers are conscious of the wisdom of having substantial amounts of flour on the books during a period of wartime uncertainty. The fact that the subsidy might be terminated is as much an inducement for them to buy as it is for the miller to be cautious in making sales.

While an individual miller may control his own forward sales by refusing to book buyers beyond a certain time yet he has no real protection in this regard because any buyer may book three or four months' supply with several different mills.

If the subsidy were terminated, a buyer who might be covered for a total of six or eight months with several mills would be unable to take delivery on all of his contracts within the 120-day period with the result that a miller might find himself with a flour sale which he was obliged to fulfill but on which he could get no susbidy payment even though sold under the subsidy.

The new contract clause covers this situation by providing that the buyer shall make up the subsidy difference under those circumstances.

CRITICAL SHORTAGE OF CONTAINERS SEEN

WPB Sponsoring Container Re-use Program in All Industries—Paper Outlook Tight

WASHINGTON, D. C.—A critical shortage of all types of containers exists, including steel drums, wooden boxes and crates, baskets and hampers, paper and textile bags, glass bottles, jars and jugs, and corrugated and solid fiber shipping containers. Open carefully and save for re-use every shipping container. The demand now exceeds the available supply of corrugated and solid fiber containers by many thousands of tons per week. Cartons unfit for re-use should be baled and sold for salvage.

The WPB has issued a booklet giving detailed instructions on methods of saving various types of containers. It can be obtained by writing the WPB Containers Division and asking for the booklet entitled "Re-use of Containers."

The paper supply situation has grown considerably tighter. Predictions that even the most optimistic estimates of 1944 paper and paperboard production will be inadequate to meet the combined war and civilian economy requirements in 1944 are made by the American Paper and Pulp Association in a report recently released.

Projecting the possible 1944 production of all paper from three alternative assumptions of the volume of pulpwood available for United States consumption in 1944, the report indicates that even if the 1944 pulpwood supply would be equal to 1943 consumption, largest of the report's estimates, paper production would be reduced to 15,579,000 tons in 1944.

Paper production for the first six months of 1943 totaled 8,500,000 tons. While basis weight reductions have been effected on some papers since then, productive capacity in the third quarter of 1943 rose slightly above that of the first six months.

The statistical summary estimates that if the 1944 pulpwood supply is maintained at the level consumed in 1943, paper and board production will fall to 15,579,000 tons. However, if the 1944 wood supply is 10% less than in 1943, total paper output will shrink to 14,021,000 tons, and if the wood supply is 30% less than 1943, paper production will drop to 10,900,000 tons.

Elimination of pulp imports, and the present bedrock point which pulp inventories have reached contributed to the estimated reduced paper yield, it is pointed out. However, it is added, "a great improvement in the waste paper situation in 1944 might tend to counteract this."

"In view of the indefinite factors involved, an attempt at evaluating the pulpwood situation in 1944 must necessarily be on a conjectural basis."

——BREAD IS THE STAFF OF LIFE——

FDA TO SELL DAMAGED FLOUR

WASHINGTON, D. C.—The Food Distribution Administration has announced that cash offers will be accepted through the Federal Surplus Commodities Corp. for damaged or out of condition flour and rolled oats. Approximately 850 98-lb bags of weevil infested and caked, rodent damaged enriched wheat flour not fit for human consumption are available at the Terminal Warehouse Co., New York. Fourteen 100-lb bags of damaged rolled oats are available at the Tidewater Terminal Warehouse, Port Newark, N. J.

Offers must be submitted to the Salvage Section of the Food Distribution Administration in Washington by Dec. 14, 1943, at 5 o'clock. Offers of acceptance will be filed by Dec. 16, and after acceptance the offers will become contracts with the FSCC.

——BREAD IS THE STAFF OF LIFE——

MILD WEATHER HELPFUL IN BOOSTING LAKE TRADE

DULUTH, MINN.—Favored with mild weather and absence of heavy winds, lake shipping of grain is expected to continue for at least a week or two longer and possibly until there is an extreme winter snap. Even with the present favorable weather conditions, ice is forming at night and boats are having a little difficulty. However, there has been no serious delay.

Loading of grain into bottoms for delivery at eastern lake terminals has been pushed vigorously since the middle of November when the ODT released steamers from the ore trade to move grain, mainly for holding at eastern ports during the winter.

November shipments out of local elevators reached the high figure of 22,210,240 bus, of which Buffalo received 19,827,855 bus, with Cleveland, Detroit, Toledo, Oswego and Ogdensberg also getting moderate amounts. Total shipments for the month reached 27,973,005 bus, as against 15,930,075 moved in the corresponding month last year.

Last week boats moved 9,522,335 bus and railroads 431,075 bus of domestic grain, besides 391,635 bus of Canadian wheat in bond, for a total of 10,345,745 bus. It is estimated that some 4,000,000 bus more grain will be carried out by boat in the remaining period of navigation.

——BREAD IS THE STAFF OF LIFE——

OPA WINS COURT TEST

WASHINGTON, D. C.—In a significant test case which may ultimately decide whether the Office of Price Administration can regulate profits, the Federal District Court in Washington dismissed an injunction suit brought by 13 producers of packaged vitamins, which sought to restrain OPA from issuing a maximum price regulation lowering prices. In denying the injunction, Judge Jennings Bailey intimated that he was not ruling on the merits of the case in upholding an OPA motion that he had no jurisdiction in the case because of the Emergency Price Control Act. The decision will be appealed to the District of Columbia Circuit Court of Appeals.

——BREAD IS THE STAFF OF LIFE——

PACIFIC N. W. MILLERS STUDY FLOUR SUBSIDY

PORTLAND, OREGON.—The North Pacific Millers Association met in Portland on Dec. 2 in a special meeting called to discuss the flour subsidy. During the day, several points were clarified, with calls put to the East to clear up some of them. At the end of the day, millers were pretty well satisfied they could operate under the subsidy until the end of December. One of the principal points of discussion revolved around the wheat basis at various markets.

WILFUL WASTE BRINGS WOEFUL WANT

(Reprinted from the Editorial Page of THE NORTHWESTERN MILLER *of June 16, 1943)*

IT is greatly to be hoped that before it becomes forever too late some one entitled to speak with the voice of authority will most earnestly warn those who just now are trying so hard and so frantically to direct our domestic food economy that if they do not watch out this country will one of these days awaken to the bitter knowledge that the loaf of wheaten bread, backlog of our whole food program, no longer is there.

Within the past few months schemes for supplying every possible economic shortage out of our "inexhaustible wheat surplus" have included the following, many of them fortunately not fully accomplished:

	Bushels
Proposed increased flour production for food	125,000,000
Authorized for animal feeding	275,000,000
Proposed for alcohol production—overstated	200,000,000
To which should be added normal use of	675,000,000
Making a total planned utilization of	1,275,000,000

There is no need to review here the perfectly well known figures of carry-over, stock pile, etc., which long have made us comfortable in possession of a wheat crop and a half over minimum food requirements. Nor need we go into a new structure of guesses involving this year's still uncertain harvest and the still more problematical seeding scheduled to begin ninety days from now.

The essential point is that last week's diversion of another fifty million bushels of wheat from food reserve to immediate animal feeding use brings us face to face with the hard fact that this diversion of essential bread grain to other uses has brought the whole food program to the danger line.

It is, of course, difficult to find fault with diversion of wheat to animal feeding in time of such overwhelming demand for production of meats, fats and dairy products. Yet today we clearly are at the point of having to decide how much further we can go in trespassing upon our bread reserves in order that we may have more of the no more essential but certainly very much more costly foods.

At the moment, save for Mr. Hoover's authoritative warnings, we are making large plans and talking importantly about how we are going to feed a half billion redeemed populations. Much of that talk and most of that loud promising must be regarded as little short of sheer nonsense unless and until we cease to look upon this wheat reserve as an inexhaustible horn of plenty. It is a very long way from being that, so far indeed, that unless we take counsel of caution now—not tomorrow or some other time—we may within months be looking another and very much more serious food shortage straight in the eye.

Fortunately there still is sufficient wheat available not only to insure plenty of bread for all but even to counsel greatly increased use of bread foods in lieu of others available in lesser supply or more difficult and costly to produce. But this security necessarily rests upon the use of wheat for human food alone, with the single possible exception of alcohol production to the extent that it may actually be required. Wheat no longer can be thrown about with lavish hand nor used recklessly to stop every crack in the none-too-secure walls of the nation's wartime food structure.

Committee Named to Increase Funds of Bakers' Foundation

CHICAGO, ILL.—A committee has been named to start work on increasing the fund of the American Bakers Foundation. The committee is composed of Harry W. Zinsmaster, Zinsmaster Bread Co., Duluth, Minn., chairman; Louis Garttner, Gardner Baking Co., Madison, Wis., Julian M. Livingston, New Rochelle, N. Y., and George L. Morrison, General Baking Co., New York.

All member firms of the industry, baker and allied, large and small, may now contribute to and become holders of American Bakers Foundation certificate of participation, or increase the amount of the certificate they now hold.

The American Bakers Foundation Fund was started following World War I when nearly $315,000 was subscribed.

From this fund the building at 1135 Fullerton Avenue, Chicago, was purchased and equipped to house the American Institute of Baking, its school, laboratories, library and offices and the offices of the American Bakers Association. Since 1935 the building also houses the offices of the Associated Retail Bakers of America and its retail and merchandising department.

The remainder of the fund was invested and the income is used to maintain the building and to improve it and to contribute to the American Institute of Baking.

For nearly a quarter of a century the public and the industry have gained in many ways through the activities of this organization. The USA School for Advanced Baking Instruction used the school facilities and grounds for training 927 men in army baking technique. This alone has somewhat repaid the industry for the original investment that made possible this service to our armed forces.

Information on this fund may be obtained on request to any committee member, the committee chairman, H. W. Zinsmaster, Zinsmaster Bread Co., 2831 West Superior Street, Duluth, Minn., or to 1135 Fullerton Avenue, Chicago, Ill.

——BREAD IS THE STAFF OF LIFE——

KANSAS WHEAT NEEDS RAIN

WICHITA, KANSAS.—With only .07 of an inch of rain for November and with bright skies through the opening week of December, the wheat of south central Kansas is suffering for rain. It is still good enough to develop and make a good crop if rains fall soon. There is very little wheat for winter pasture, such as the farmers of southern Kansas usually have at this time of the year.

FLOUR SALES ZOOM UPWARD AS SUBSIDY PUTS LIFE INTO TRADE

Almost All Business Done at Ceiling Levels—Millers Not Pressing for Sales, Fearing Shelving of Subsidy—Government Early Heavy Buyer

The announcement of the subsidy rates has injected new life into the flour trade, and sales at most of the principal markets have zoomed upward following a period of dullness caused by the price squeeze between wheat and flour. Practically all business is done at ceiling levels and many millers say they have never known a time when price was less of a consideration in the sale of flour. Millers are not anxious to sell too far ahead, fearing Congress may put an end to the subsidy program, and so are not pressing for the sales which are coming to them. The government was one of the early heavy buyers, buying 1,660,800 sacks. Shipping directions continue good.

Pent-up flour demand at the Minneapolis market, long forestalled by the price squeeze, came out with a rush when the subsidy program was announced. Sales for last week averaged 218% of capacity compared with 12% the previous week and 185% a year ago. However, after the initial rush, both the mills' desire to sell and buying interest fell off, and currently only moderate business is being done. A substantial part of last week's sales consisted of government business under lend-lease, totaling around 800,000 sacks. But the bulk of the trade is with bakers and sales are generally medium sized and widely scattered. There is no big demand for clears. Shipping directions are good and production has recovered from the modest slump of last week.

Sales at Kansas City started immediately after the subsidy went into effect but not with the burst of activity some expected. Sales reached 80% of capacity last week, with government business thrown in, as compared with 6% the previous week and 52% a year ago. Sales almost without exception are at ceiling levels. Efforts to sell on the part of the mills have been modest, since millers are not anxious to sell too far ahead. Clear grades are strong, and supplies are not easy to find.

Heavy sales followed the subsidy measure at Buffalo. These sales are made to that part of the trade which has been unable to buy because of the price squeeze. Increased directions and record Christmas trade appear certain. Clear prices are down 10c and heavy sales have been made at the lower price. Directions continue unusually good.

Other eastern markets report fair to good buying following the placement of subsidies, as brokers are again able to offer flour. Immediately on the heels of the announcement practically all buyers came in for limited replenishments, with jobbers the heaviest takers.

The anticipated improvement in demand did not materialize at the Chicago market. Business is confined to scattered sales of one to three car lots, as buyers are not interested in adding to their holdings. Family demand has failed to improve and sales are negligible. Directions continue active, deliveries fair.

Mills in the central and southeastern states report no outstanding effect from the extension of subsidies. Some confusion exists and operations continue on a restricted basis.

Flour markets in the Pacific Northwest report little change. Most mills are marking time and studying the terms of the subsidy. New bookings are negligible. Meantime mills are working out old orders, awaiting developments.

PRODUCTION

Flour production showed an increase of 196,000 sacks compared with the previous week. The total output of the mills reporting to THE NORTHWESTERN MILLER, accounting for 73% of the nation's output of flour, amounted to 3,534,298 sacks, compared with 3,338,795 sacks in the preceding week. In the similar period a year ago, when the mills reporting accounted for 64% of the total, the figure was 2,943,706 sacks, two years ago it was 2,530,550 and three years ago 2,595,791. Compared with the previous week, the Northwest milled 65,000 sacks more, the Southwest 65,000 sacks, the Pacific Northwest 17,000 sacks and the central and southeastern states 65,000 sacks also. Production in Buffalo was off 16,000 sacks.

——BREAD IS THE STAFF OF LIFE——

TEMPORARY RELIEF IN OKLAHOMA

OKLAHOMA CITY, OKLA.—Temporary relief was afforded some areas of Oklahoma by light rains and snows which conditioned the soil to enable wheat planting to be resumed and supplied some moisture to the growing wheat crop. The crop on the whole has made slight progress the past few weeks on account of deficient moisture and cool weather. Wheat fields are affording practically no pasturage except in the more favored localities in the northeastern counties. Weather conditions have been ideal for harvesting this week and farmers have made excellent progress.

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CENTRAL STATES MILLERS SCHEDULE THREE MEETINGS

To consider questions arising out of the DSC flour subsidy program, three meetings have been scheduled for millers in the central states. They are:

Dec. 9.—Netherlands, Plaza Hotel, Cincinnati, 10 a.m.

Dec. 10.—Merchants Exchange Directors' Room, St. Louis, 10 a.m.

Dec. 14.—Hays Hotel, Jackson, Mich., 5:30 p.m.

Staff members of the Millers National Federation will be present at all these meetings and will help in the consideration of subsidy questions.

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GET ACQUAINTED PARTY

MINNEAPOLIS, MINN.—About 400 attended a "get acquainted" party for employees of the Pillsbury Flour Mills Co., Minneapolis, which took place at the Leamington Hotel, Dec. 20.

November Flour Output Levels Off

FLOUR production in November failed to show a gain over the preceding month, THE NORTHWESTERN MILLER's monthly flour production report indicates. Output for the month was figured at 15,143,227 sacks, slightly below the 15,165,303 sacks produced in the previous month, but sharply above the 12,148,788 sacks turned out in the corresponding month a year earlier. Current figures are based on reports representing 73% of the milling capacity of the United States, while the 1942 figure represented 64% on the capacity. Production figures for the past several months indicate that a leveling off stage has now been reached, for each month the production gain over the preceding month has become less marked.

In November, gains in output were reported in the Northwest, Southwest and at Buffalo. Losses occurred in the central and southeastern states and in the North Pacific Coast area. Complete details of production by various sections for the past three years are shown in the following table:

TOTAL MONTHLY FLOUR PRODUCTION, IN SACKS

	November, 1943	Previous month	November 1942	November 1941	November 1940
Northwest	3,358,431	3,518,848	2,853,652	2,690,171	2,571,551
Southwest	5,568,714	5,501,633	4,794,822	4,040,728	4,143,814
Buffalo	2,224,291	2,091,965	1,652,155	1,602,964	1,555,248
Central and Southeast	†2,475,387	2,513,381	1,895,185	1,783,041	1,826,383
North Pacific Coast	1,516,404	1,539,476	952,974	947,378	1,412,617
Totals	15,143,227	15,165,303	12,148,788	11,064,282	11,509,613
Percentage of total U. S. output	73	73	64	64	64

†Incomplete.

TOTAL MONTHLY PRODUCTION OF DURUM PRODUCTS‡

November, 1943	October, 1942	November, 1942	November, 1941
*833,209	791,054	837,792	642,931

*Incomplete.

GENERAL FEED SITUATION TIGHT BUT LESS DESPERATE

Mild Weather in Much of Feeding Area Tones Down Urgency of Demand—Ground Grain Feed Prices Reduced—By-Product Output at Capacity Levels

The general feed situation though still tight appears less desperate. Mild weather over much of the feeding area has toned down the urgency of demand somewhat while output of by-product feeds is holding at or near capacity levels. Another feature of the situation is the reduced prices which prevail for ground grain feeds. Recent declines in oats and barley have enabled grinders to quote materially lower prices for the ground product and offerings in some cases g· without takers even at the lower levels. The index number for the week is unchanged at 191.7 compared with 165.2 a year ago.

Millfeed output at Buffalo, the Northwest and the Southwest stepped up somewhat last week, with the three centers reporting production of 56,211 tons, compared with 53,769 in the previous week, according to figures compiled by THE NORTHWESTERN MILLER. A year ago output was 48,851 tons. Crop year output to date is 1,233,451 tons, compared with 1,075,284 at the same time a year ago.

At Minneapolis the situation remains quite tight with mill run lighter than the week before. While offerings in straight car lots are negligible, requirements of the near-by feeding territory are well taken care of by truck deliveries and pick-up at mill doors. Mixed feed manufacturers are able to purchase some of the wheat feeds along with mixed cars containing clear flour. Freer offerings of ground barley and ground oats at materially lower prices have served to take the edge off the tight wheat feed situation.

Movement from Chicago mills continues large but mainly in mixed car and truck lots. Moreover, a large tonnage is being retained by mills for the manufacture of their mixed feeds.

Demand for feedstuffs at Kansas City is possibly slightly less urgent due to fair weather and mild temperatures throughout the surrounding feeding area. Grain pastures are affording some feed and sorghum stubble and beet tops are being utilized wherever available. Car lot offerings of the wheat feeds continue extremely small notwithstanding the fact that mills operate to the limit of manpower and machinery. Distribution of wheat feeds is mostly in small lots moving in mixed cars and trucks along with smaller amounts at retail off mill docks.

At Buffalo the wheat feed situation remains about unchanged with no open market offerings and allocations about the same as during recent weeks. Mills are operating at about 85% of capacity but despite relatively large production supplies are well below current demand. Prices at all markets are well maintained at ceiling levels.

Canadian millfeed markets continue to report a demand in excess of supplies. Exports are at a standstill because of the scarcity of winter wheat.

A little scattered single car lot business on linseed meal has been booked by Minneapolis crushers for December shipment and reports indicate that some rather good sized tonnages have been booked to mixed feed manufacturers for shipment after the first of the year. While demand for linseed meal from all classes of trade far exceeds the available supplies, crushers apparently are keeping a careful eye on the situation and most of the real urgent needs of the trade area usually supplied from the Minneapolis market are being filled. Trade in soybean meal, however, remains completely out of the picture, there being no offerings at all.

Subsidy Influence Pushes Wheat Prices to Peak Levels

Strength in Feed Grains Also Influencing Factor—Winter Wheat Outlook Pessimistic

The flour subsidy program and strength in rye, oats and barley as a result of government action have pushed wheat prices to peak levels. An advance of 1c bu in the parity price of wheat and the not too favorable outlook for the winter wheat crop also have added strength to the market. However, light snow is reported in parts of Kansas, Nebraska and Colorado.

Parity prices as of Nov. 15 were as follows: wheat 148, corn 107, oats 66.6, barley 103, rye 120, flax 282, soybeans 160, all in cents per bushel. Farm prices on Nov. 15 were: wheat 137, corn 105, oats 75.2, barley 103, rye 102, flax 284, soybeans 180.

Cash wheat prices at Kansas City kept pace with the steady advance of futures and quotations range 3½@4c higher than a week ago. No noticeable change has taken place in premiums. Interest in winter wheat by milling interests has broadened following the flour subsidy announcement and processors have absorbed the bulk of offerings. CCC and distiller interests are taking liberal amounts. Receipts last week totaled 656 cars. The outbound movement increased sharply to 1,075 cars.

Average protein of 654 cars of wheat tested at Kansas City during the week was 13.66% as compared with 13.28% on 462 cars a week ago and 13.01% on 772 cars a year ago. For the month of November the average was 13.32% on 2,225 cars as compared with 12.84% on 2,560 cars during the same month a year ago.

Premiums on cash wheat at Minneapolis are unsettled, especially on low protein types. Lateral broadened demand as a result of good sales of flour by mills under the new subsidy program did not stiffen values. No. 1 dark northern spring wheat with protein up to 14% is at 1¾@2¾c over the Minneapolis December wheat price. Additional premiums based on protein run 2½c more for 15% protein and 10c additional for 16% protein. Bids for Head of the Lakes unloading show no additional premium unless in the 16% protein bracket. Sixteen per cent protein wheat from North Dakota brings 1c additional and 16% protein from Montana 2c over bids for local unloading. Receipts at Minneapolis last week were somewhat larger and amounted to 2,664 cars. Inspections indicated there were 196 cars of winter and 167 cars of durum in these receipts. Average protein content of the hard red spring wheat tested during the week was 13.57%, durum 12.31%.

There is an excellent demand for wheat by coast mills, due to the heavy flour business put through and in prospect as a result of FDA announcements. Prices have worked upward and at the higher levels there is a freer movement of wheat, and the trade is able to get all the wheat it wants.

Eastern sales, however, have slowed to a walk. There are sales of special types of wheat made on an f.o.b. basis, with the buyer paying the transportation costs. Some shippers, however, are reluctant to get into this business for fear it may not be legal. Demand for feed wheat is still strong.

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PARITY PRICES OF WHEAT, SOYBEANS, OATS ADVANCE

Parity prices of wheat, oats, soybeans and flaxseed advanced during the month ending Nov. 15, the Department of Agriculture reports. There was a 1c gain in wheat parity, putting the figure at $1.48 bu on the farm, compared with $1.37 a year ago.

The advance in the parity calculation for oats was .4c, making the Nov. 15 figure 66.6c, against 61.8c a year ago. The soybean and flax figures were up 1c in November. Other grains were unchanged during the month.

Average farm prices for Nov. 15 show that only wheat, rye and corn were selling for less than parity on Nov. 15.

The following table gives parity figures on the farm for grains, hogs and cotton, with prices received by farmers on Nov. 15 (grains in cents per bushel, hogs and cotton in cents per pound):

Parity

	Nov. 15, 1943	Oct. 15, 1943	Nov. 15, 1942
Wheat	148.0	147.0	137.0
Corn	107.0	107.0	99.5
Oats	66.6	66.2	61.8
Rye	120.0	120.0	111.6
Barley	103.0	103.0	95.9
Soybeans	160.0	159.0	149.0
Flax	282.0	281.0	262.0
Hogs	12.10	12.10	11.27
Cotton	20.71	20.58	19.22

Average Farm Prices

	Nov. 15, 1943	Oct. 15, 1943	Nov. 15, 1942
Wheat	137.0	135.0	104.4
Corn	105.0	107.0	75.9
Oats	75.2	74.4	44.3
Rye	102.0	101.0	50.4
Barley	103.0	103.0	57.9
Soybeans	180.0	180.0	158.0
Flax	284.0	279.0	223.0
Hogs	12.90	14.00	13.43
Cotton	19.40	20.28	19.22

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CONTINUANCE OF HEAVY TEXTILE DEMAND SEEN

NEW YORK, N. Y.—Burlap continues to move into trade channels with reasonable smoothness, as steamer arrivals keep supplies proportionately good. However, such difficulties in India as labor shortages and railroad confusion keep the situation there in disturbance and no immediate improvement is in sight.

Bag manufacturers are still affected by inadequate labor supply and, although the large companies seem to handle and process in normal routine, smaller plants are reported in difficulty to fill all orders. Used bags are in good demand.

Cottons for bagging continue short, but no one seems actually to run out of them. Some constructions such as osnaburgs and sheetings were taken in fairly good amounts during the past week for delivery during January, February and March.

Textile groups met here recently to discuss postwar conditions, and are convinced that needs for such goods to continue the war in Asia will greatly exceed expectations. Requests for deliveries to December, 1944, by the armed forces, were reported last week. The objectives stated at the Cairo conference will call for heavy future production. Consideration was given in the recent conferences here to the probability of China's becoming a large outlet for American textiles, with consideration also of the possibility of American firms establishing mills there.

Bemis Bro. Bag Co.'s cotton goods index, a composite figure reflecting wholesale prices of principal cotton cloth used in bag making expressed in cents per yard of cloth, is 8.00 as compared with 8.00 a year ago. The Bemis composite figure reflecting duty paid early shipment prices of heavy and lightweight Calcutta burlap expressed in cents per lb of cloth is 17.44 as compared with 16.88 a year ago.

Current Flour Production

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WEEKLY FLOUR PRODUCTION, IN SACKS

	Dec. 4, 1943	Previous week	Dec. 5, 1942	Dec. 6, 1941	Dec. 7, 1940
Northwest	*787,573	722,803	695,643	572,939	526,532
Southwest	1,295,385	1,229,992	1,186,907	1,035,854	918,031
Buffalo	501,926	517,900	367,012	372,923	388,017
Central and Southeast	†590,886	526,338	442,954	316,160	437,729
North Pacific Coast	358,528	341,762	251,190	232,674	325,482
Totals	3,534,298	3,338,795	2,943,706	2,530,550	2,595,791
Percentage of total U. S. output	73	73	64	64	64

*Partly estimated. †Incomplete.

	Percentage of activity					Crop-year flour production July 1 to	
	Dec. 4, 1943	Previous week	Dec. 5, 1942	Dec. 6, 1941	Dec. 7, 1940	Dec. 4, 1943	Dec. 5, 1942
Northwest	78	71	66	51	47	15,728,161	14,641,716
Southwest	93	89	85	74	66	27,037,444	24,605,078
Buffalo	86	90	63	64	68	10,535,367	8,955,993
Central and S. E.	78	67	64	56	64	12,283,809	9,931,817
N. Pacific Coast	87	83	76	58	77	7,030,295	5,699,326
Totals	86	81	73	62	62	72,615,076	63,833,930

THE SOUTHWEST

55 Representative Mills

	Weekly capacity	Flour output	Pct. activity
Nov. 28-Dec. 4	814,380	788,131	97
Previous week	814,380	761,621	93
Year ago	814,380	697,505	86
Two years ago	814,380	607,447	75
Five-year average			74
Ten-year average			67

Kansas City

Nov. 28-Dec. 4	352,800	307,242	87
Previous week	352,800	281,873	80
Year ago	352,800	305,889	86
Two years ago	352,800	280,884	80
Five-year average			77
Ten-year average			75

Wichita

Nov. 28-Dec. 4	111,132	105,719	95
Previous week	111,132	91,866	83
Year ago	111,132	91,295	82
Two years ago	111,132	64,868	58

Salina

Nov. 28-Dec. 4	109,956	94,293	86
Previous week	109,956	94,632	86
Year ago	109,956	92,218	84
Two years ago	109,956	82,655	75

PACIFIC COAST

Principal mills on the North Pacific Coast:

Seattle and Tacoma District

	Weekly capacity	Flour output	Pct. activity
Nov. 28-Dec. 4	269,100	214,869	80
Previous week	269,100	216,686	81
Year ago	221,088	155,907	83
Two years ago	256,368	143,846	56
Five-year average			66
Ten-year average			63

Portland District

Nov. 28-Dec. 4	143,200	143,659	100
Previous week	143,200	125,076	87
Year ago	143,472	96,183	67
Two years ago	146,216	88,827	62
Five-year average			74
Ten-year average			69

THE NORTHWEST

Principal interior mills in Minnesota, including Duluth, St. Paul, North Dakota, South Dakota, Montana and Iowa:

	Weekly capacity	Flour output	Pct. activity
Nov. 28-Dec. 4	693,546	462,088	67
Previous week	693,546	434,342	63
Year ago	693,546	444,010	64
Two years ago	763,518	373,139	49
Five-year average			51
Ten-year average			48

Production for current week was partly estimated.

Minneapolis

	Weekly capacity	Flour output	Pct. activity
Nov. 28-Dec. 4	319,284	325,485	102
Previous week	319,284	288,461	90
Year ago	353,388	251,633	71
Two years ago	351,036	199,800	57
Five-year average			63
Ten-year average			54

CENTRAL AND SOUTHEASTERN

Mills in Illinois, Ohio, Michigan, Indiana, Kentucky, North Carolina, Tennessee, Virginia, Georgia and eastern Missouri:

	Weekly capacity	Flour output	Pct. activity
Nov. 28-Dec. 4	*758,521	590,886	78
Previous week	*784,045	526,338	67
Year ago	691,547	442,954	64
Two years ago	567,067	316,160	56
Five-year average			64
Ten-year average			63

Current week partly estimated.
*Including mills not previously reporting.

BUFFALO

	Weekly capacity	Flour output	Pct. activity
Nov. 28-Dec. 4	577,416	501,926	86
Previous week	577,416	517,900	90
Year ago	577,416	367,012	63
Two years ago	577,416	372,923	64
Five-year average			69
Ten-year average			71

MILLFEED OUTPUT

Production of millfeeds, in tons, for the current and prior two weeks, together with season totals, of (1) all mills of Nebraska, Kansas and Oklahoma and the cities of Kansas City and St. Joseph; (2) all mills of Minnesota, North and South Dakota and Montana, including Minneapolis, St. Paul and Duluth-Superior; (3) mills of Buffalo, N. Y. (computed from operation reports made to The Northwestern Miller by more than three fourths of the flour milling capacity of the territories included):

	Southwest		Northwest		Buffalo		Combined	
	Weekly production	Crop year to date	Weekly production	Crop year to date	Weekly production	Crop year to date	Weekly production	Crop yr. to date
Nov. 28-Dec. 4	31,075	690,551	15,533	337,109	9,603	205,791	56,211	1,233,451
Previous week	29,569		14,291		9,909		53,769	
Two weeks ago	31,581		16,634		9,603		57,818	
1942	28,327	600,647	13,502	300,615	7,022	174,022	48,851	1,075,284
1941	24,634	560,639	11,341	285,346	7,135	167,998	43,110	1,013,983
1940	22,086	525,698	10,093	268,083	7,424	168,579	39,603	925,360
1939	21,599	546,449	10,640	283,529	6,148	175,440	38,837	1,005,418
Five-yr. average	25,544	584,797	12,222	294,816	7,466	178,366	45,232	1,057,979

ARGENTINA EXPECTS RECORD WHEAT CROP

Preliminary Forecast of 312,000,000 Bus Made—Average Per Acre Yields May Reach All-time High

WASHINGTON, D. C.—The Argentine government's recent preliminary forecast of a 312,000,000-bu wheat crop this year would represent, if realized, a near record output, according to the Department of Agriculture's Office of Foreign Agricultural Relations. Only in 1928-29 and in 1938-39 were larger crops harvested. The Argentine ministry of agriculture pointed out that the estimate was being made almost a month earlier than usual and that prospects might be reduced somewhat by rust damage.

Reports from all sections of the Argentine wheat belt agree that rarely if ever have climatic conditions been more favorable to the growing crop. Should present estimates be realized, average yields would reach an all-time record of 18.5 bus per acre from a sown area of 16,914,000 acres. Last year's wheat crop amounted to 235,000,000 bus. The annual average for the five-year period ended with the 1941-42 season was 248,000,000 bus.

On the basis of official Argentine reports of domestic utilization and exports, the Dec. 1, 1943, carry-over will amount to approximately 180,000,000 bus, an all-time record and about 10% larger than the Dec. 1, 1942, figure. This estimate includes about 68,000,000 bus definitely earmarked for special purposes, such as for fuel and feed and for wheat contracted for but not shipped by the end of the 1942-43 crop year.

The indicated total wheat supply for the 1943-44 season (December-November) of about 492,000,000 bus, would be almost 25% above the large 1942-43 supply. A deduction of 103,000,000 bus to cover normal domestic consumption and seed requirements leaves a balance of 389,000,000 bus for increased uses within the country and for export or carry-over into the 1944-45 season.

On July 22, 1943, the Argentine government authorized the sale of about 75,000,000 bus of wheat from the large 1942-43 supplies for fuel and about 18,000,000 for feed purposes. The grain board was permitted to make such sales at a price of 44 pesos per metric ton (36c bu) in bulk delivered at railroad stations. Indications are that somewhat less than half of the fuel wheat was used by Dec. 1. The belief is that the allocated quantities of feed wheat will not be completely used for that purpose before the first of March or April.

The Argentine government in recent years has been guaranteeing wheat producers a fixed minimum price for all wheat sold by farmers to the grain board. The guaranteed minimum price for the 1942-43 crop, effective Dec. 1, 1942, was 6.75 pesos per quintal (55c bu). On Sept. 30, 1943, the government fixed the guaranteed minimum price for the 1943-44 crop, effective Dec. 1, 1943, at 8 pesos per quintal (65c bu). The increase in the guaranteed price reflects increased costs as well as a stronger world market situation for wheat. At the higher price level wheat seedings in Argentina next year are generally expected to show an increase over the reduced levels of the past several seasons.

Argentina's exports of wheat during the 1942-43 season are estimated at approximately 68,000,000 bus, a reduction of 20 to 25% from the reduced levels of the two preceding years. With the curtailment of normal grain export outlets as a result of shipping difficulties and other wartime trade obstacles, Argentine wheat growers have had a steadily increasing storage problem. The government is considering the construction of underground storage space to handle around 1,000,000 metric tons (37,000,000 bus) of wheat but the belief is that this would solve the problem only to a limited extent, in view of the large wheat supplies in prospect. The storage situation is further complicated by a critical shortage of bags.

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50 Cars Daily to Start Moving Grain From Canada to U. S.

WASHINGTON, D. C.—A temporary movement of 50 box cars daily into Canada to ship out feed grains badly needed in deficit areas not sharing in receipts from the record Great Lakes shipments was started Dec. 6, according to the Association of American Railroads.

The Canadian grain will be shipped through the western mountain states and Minneapolis, agricultural import officials said. The grain will be disbursed mainly into Utah and deficit areas in the Southeast.

Approximately 2,000,000 bus of feed grain can be imported in this manner in the next month if the daily car disbursal is maintained, it was said. Eastern railroads serving the Ohio River gateway will furnish the box cars which will be disbursed through Chicago onto the Canadian Pacific and Canadian National railroads.

HOPE FOR MORE PURCHASES

Meanwhile, Commodity Credit Corp. disclosed that through Dec. 4 purchases of Canadian wheat amounted to approximately 53,000,000 bus, of total acquisitions, around 45,000,000 bus already have been imported both by rail and water. It is hoped that sending more box cars to Canada will permit additional purchases. CCC's buying activities in the Dominion have been restricted recently by refusal of the Canadian wheat board to issue additional purchase permits until wheat contracted for previously had been moved out.

A minimum goal of 75,000,000 bus has been set by the War Food Administration as the amount of Canadian grain which must be purchased and imported in order to supplement domestic supplies and insure achievement of livestock and poultry production goals next year.

LAKE BOATS STILL LEAD

Officials in charge of the lakes grain movement said that lake boats now are loading to capacity all domestic and Canadian grain made available for shipment at ports, and on this basis it is expected that total bushelage moved will exceed previously announced expectations, despite the fact that the water shipping season is almost over.

The Canadian box car allocation will not in any way interfere with the normal car movement being maintained in the Northwest, the A.A.R. emphasized. The total supply in the entire Northwest area was estimated at around 1,000 cars a day. Cars empty through Chicago and go as far west as Puget Sound to load grain, railroad officials said.

——BREAD IS THE STAFF OF LIFE——

Quality of 1943 Wheat Crop Above That of Year Ago

The quality of the 1943 wheat crop produced east of the Rocky Mountains is higher than that of the 1942 crop and also higher than the average for the eight-year period 1934-41, inspected receipts at representative markets indicate. Protein content of hard milling wheats is averaging slightly higher than a year ago.

Hard red spring wheat graded higher this season than a year ago and considerably higher than average. Seventy-nine per cent of the inspected receipts, August through October, graded No. 2 or better and only 6% graded lower than No. 3. These compare with 72% and 10%, respectively, in 1942, and with 52% and 26%, respectively, for the 1934-41 average. Ninety-three per cent classified as dark northern spring compared with 91% last year and 97% the average. Protein content of this class of wheat inspected at Minneapolis averaged 13.58% compared with 13.39% last year.

The quality of the hard red winter wheat crop this season is higher than last year and materially higher than average. Eighty-eight per cent of the inspected receipts, July through September, graded No. 2 or better, while only 3% graded below No. 3. These compare with 81% and 5%, respectively, for 1942, and with 59% and 18%, respectively, for the eight-year average. Forty-nine per cent classified as dark hard winter compared with 39% last season and 49% the 1934-41 average. The wheat tested at Kansas City averaged 12.97% protein compared with 12.95% for the same period last year and with 13.29% for 1941.

Durum wheat this season is about of average quality and of much better quality than last year's exceptionally poor crop. Sixty-nine per cent of the inspected receipts, August through October, classified as hard amber durum compared with 67% in 1942 and with 95% the eight-year average. The moisture content of this class of wheat was much lower this season and only 7% graded "tough" compared with 21% in 1942 and 4% for the average. Sixty-five per cent graded No. 2 or better and 18% graded lower than No. 3 compared with only 36% and 41%, respectively, last season, and 69% and 18%, respectively, for the 1934-41 average.

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RUSSELL H. O'NEILL SALES MANAGER

MASCOUTAH, ILL.—Philip H. Postel, president, Ph. H. Postel Milling Co., Mascoutah, Ill., announces the appointment of Russell H. O'Neill as sales manager for the company. Mr. O'Neill assumed his new duties Dec. 1, and in addition to his sales promotion activities he is connected with commercial feed production. For the past two years he has been with the Stanard-Tilton division of the Russell-Miller Milling Co. at Alton, Ill.

AUSTRALIA'S 1943 CROP TO BE SMALL

Curtailed Acreage, Smaller Yields Account for Reduction—Total Estimated at About 89,000,000 Bus

WASHINGTON, D. C.—The wheat crop to be harvested in late 1943 and early 1944 in Australia is placed at 89,000,000 bus, according to a preliminary forecast. This would be only about 57% of the 1942-43 outturn and, with the exception of the small 1940-41 crop, the smallest production since 1919. Curtailed acreage and smaller yields account for the expected reduction.

The area seeded to wheat is estimated at around 8,300,000 acres, compared with the 1942-43 acreage of 9,300,000. The figure quoted is that for grain only. The intended wheat seedings for both grain and forage were about 9,200,000 acres. At the level reported, the area for grain is about 1,000,000 acres smaller than the acreage for the preceding year, and is about 5,000,000 acres less than the average during the 10 years ending with 1941-42.

The current forecasts indicate an average yield per acre of about 10.7 bus contrasted with the record yield of around 16.8 bus in 1942-43. The low prospective yields are said to be the result of a shortage of superphosphates, as well as the unfavorable weather at seeding time and during the growing period.

Wheat acreage was greatly restricted under the terms of the Wheat Stabilization Plan, which put into effect with the seeding of the 1942-43 crop a compulsory 33% reduction of the wheat acreage in Western Australia and a system of acreage licensing for other states. The terms of the restricting order are still in force, and in addition to its limitations and those imposed by the shortage of manpower and the rationing of superphosphates, it is believed that the new basis of payment has caused further reductions.

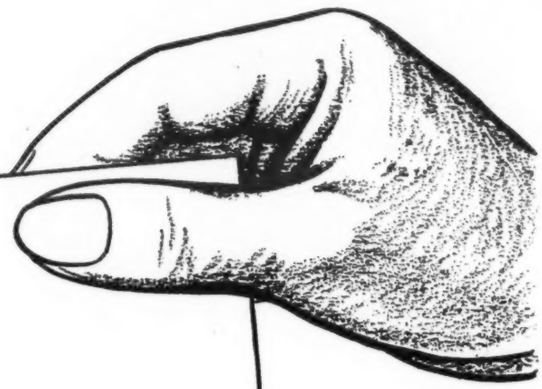
Under the present scheme, growers are paid 4s bu (about 65c in United States currency) for the first 3,000 bus produced, bagged basis, at country sidings. The advance of 2s (32c) bu on the grain in excess of the 3,000 bus is considered too low to cover high production costs under existing circumstances, and it is believed that growers have lowered their acreage accordingly.

Farmers' representatives have asked that measures be taken to check the decline in the wheat industry. Growers' organizations are also reported to be asking that the guaranteed price be raised to 5s 2d (83c) bu, bagged basis, for the first 3,000 bus of the 1943-44 crop delivered.

——BREAD IS THE STAFF OF LIFE——

FOUNTAIN SPRING MILL BURNS

GREELEY, IOWA.—Fountain Spring Mill, one of the most curious and primitive old water mills in the Upper Mississippi area, burned to the ground recently. Built by Jeb Odell in northeastern Iowa in 1855, it was run for many years as a flour mill, and until recent years grist was ground with the same millstones used in the 50's and 60's. Because the power was supplied by one of the largest springs in northeastern Iowa, the mill was often referred to as "the mill run by a waterfall."



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It was in this mill at Hastings that Stephen Gardner discovered the process by which patent flour is milled, that he developed the forerunner of the modern purifier, and instituted many new milling methods which are standard practice today.

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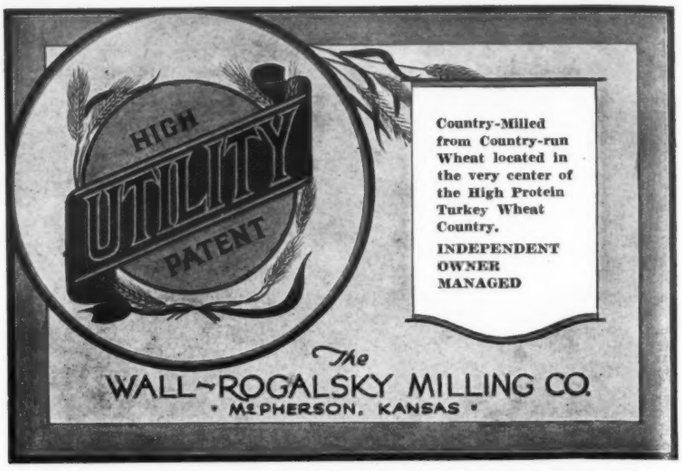

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OFFICERS CHOSEN BY CROP IMPROVEMENT ASSOCIATION

MINNEAPOLIS, MINN. — The annual meeting of the Northwest Crop Improvement Association was held on Nov. 23 and the following men elected to the board of governors: Charles T. Silverson, chairman; Walter H. Mills, Stanley Partridge, C. M. Hardenbergh, S. M. Thiele, Henry E. Kuehn, P. B. Hicks, L. J. Weidt, Cargill MacMillan, E. J. Mitchell, John W. Haw, E. C. Hillweg, John E. Klingen, J. M. Chilton, F. J. Seebach and Stuart F. Seidl. J. G. Byam was re-elected treasurer and Henry O. Putnam executive secretary.

The board of governors appointed the following men to serve on the executive committee: W. I. Nightingale, chairman; Stuart F. Seidl, Robert C. Woodworth, John E. Klingen, R. N. McCaull, L. J. Carlin and Charles T. Silverson.

The program for the coming year will include the regular milling and baking tests which are conducted in co-operation with the state experiment stations to learn the value of new wheat varieties and assist in weeding out undesirable ones before they are released. Regent was accepted last year while North Dakota discarded No. 2822. New durums have been tested and two stem rust resistant varieties were released by the U. S. Department of Agriculture last year under the names of Carleton and Stewart.

A conference of extension agronomists and plant pathologists from the Northwest states will be held in December to discuss agronomy and plant disease problems and co-ordinate a program for the coming year. A barley conference of plant breeders and members of the trade will also be held in December to discuss barley problems of both the trade and the scientists.

Other projects will include oat and flax improvement, grain schools, crop improvement meetings, seed treatment and seed clinics in co-operation with other agricultural groups interested in a better agriculture in the Northwest.

——BREAD IS THE STAFF OF LIFE——

WALTER E. SANDS HEADS SANDS, TAYLOR & WOOD CO.

BOSTON, MASS.—At a recent meeting of the board of directors of Sands, Taylor & Wood Co., New England's oldest flour company (King Arthur Products), Walter E. Sands was elected president of the corporation. Mr. Sands has been with the company for 16 years and has served as division manager, sales manager and vice president and general manager. He is a graduate of Dartmouth College and of Dunwoody Institute, Minneapolis, where he took special courses in chemistry, milling and baking, and is a member of the New England Bakers Association and the Bakers Club.

Leon T. Allen was elected vice president of the company.

——BREAD IS THE STAFF OF LIFE——

WISCONSIN STATE FAIR BAKERY

MILWAUKEE, WIS.—Fred Laufenberg, secretary of the Wisconsin Bakers Association, which with the state department of agriculture is co-sponsor of the State Fair Bakery each year during the annual Wisconsin fair, reported that the bakers' group has recevied its half share of the net profit resulting from the 1943 operation. The check totaled $1,868.

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Today & Yesterday

LECTURE NOTES

J. Wallis Muirhead, milling engineer and a director of Henry Simon, Ltd., a leading mill machinery house of Great Britain, sold himself in 90 seconds to a critical audience of 750 Kansas Citians recently.

On tour with Eric Johnston, president of the United States Chamber of Commerce, Mr. Muirhead gave a delightful talk to chamber members in Kansas City one noon, and apparently convinced Ward Gifford, local head of the C. of C., that he knew plenty about ad libbing in front of discriminating listeners.

That night Mr. Gifford faced a problem. He had rushed the dinner guests through their desserts by starting the program somewhat early, and then hurried through preliminary introductions, watching the clock so he could come out just right with the hawk-eyed radio technicians who were cutting in on national hookups at 8:30 when the new national hero, Mr. Johnston, was to speak.

Placid Mr. Gifford arrived at his speaking impasse at 8:23. He had no one left to introduce. He was too smart to engage in small talk until he started with his machine gun introduction of Mr. Johnston. He looked around at the distinguished head table and spotted Mr. Muirhead, whom he already had presented.

"Mr. Muirhead," he said, "I should like to have you greet your American friends for exactly one minute and a half."

Not of the nature to engage in trite pleasantries, the distinguished British milling engineer rose to his feet and spoke approximately as follows:

"Ladies and gentlemen. You are quite aware that I cannot be fully prepared because of the rather short notice.

"However, I feel that you will be interested, as I was, in a book that the reverend with whom I am sitting was discussing with me a moment ago. It was a book he recently had read.

"The first chapter, he says, is entitled 'Hell.'

"The second chapter is headed 'Hell Continued.'

"He had not yet told me about chapter three.

"I should like to think of World War I as the first chapter, 'Hell.'

"Then I should like to call World War II 'Hell Continued.'

"To carry the theme farther, I should like to feel that as the result of the conference at Moscow, and other similar agreements, we might write a third chapter.

"The title for that, I pray, may be entitled 'Hell, Concluded.'

"I thank you."

In 90 seconds or less of meaty talk, Mr. Muirhead was able to drive home his feelings in a way that everyone understood.

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When bread is on the table, there is a throne, but without it only a common board.—Russian Saying.

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A front line fighter command station in the south of England has added its little quota to the cultivation of the soil. Airmen and airwomen of the unit have tilled and planted odd corners and have raised crops this year worth $6,000 to feed the staff on their airfield.

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CLOTH SHORTAGES CAUSED BY WAR

War has caused some serious shortages but none has caused greater headaches than the shortage of certain cotton cloths of standard bag constructions such as those needed in making large numbers of flour and feed bags. These constructions include 40-inch-3.75 yard, 40-inch-4.25 yard and 37-inch-4.00 yard.

This shortage is due to a combination of things: small supplies of lightweight burlaps from India, increasing demands for commercial feed bags and growing volume of over-sea shipments of flour and sugar.

Realizing the tremendous importance of insuring the supply of bags to food packer, feed manufacturer and farmer, the government long ago ordered many companies making certain cotton cloths to convert between 20 and 40% of their looms to the manufacture of bag osnaburgs and sheetings.

Though this has helped to solve the shortage somewhat, a great need still exists for cloths of these types. To fill the gap, the bag industry has had to do a lot of improvising by using goods that are too wide, too narrow or too heavy.

Cloth from looms formerly making towels is sometimes too narrow, so seams must be sewn on both sides. Cloth from looms formerly turning out denims, draperies and flannels may be too wide, so slitting is necessary. All these things will continue to be necessary until the shortage disappears. The present outlook is that it will not disappear for some time, as demands for feed, flour and sugar bags grow larger and over-sea shipments in bags increase.—*Bemistory Magazine.*

▪ ▪ ▪

A hundred bakers, a hundred millers, a hundred tailors are three hundred thieves.—Dutch Saying.

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BEERY BREAD

It is acknowledged that there have been grounds for the allegation that in some areas bread has had a decidedly beery flavor. But the assertion that barley is responsible for this is scarcely justified. Yeast we rather think has more to do with it than barley. So far as we can learn, producers in areas where the taste has been noticed have not been unduly overwhelmed by either new customers or increased demands for this particular type of bread.—*National Association Review,* London, England.

THIS WEEK'S COVER

Like the ballads, tales and riddles inherited from past centuries, nursery rhymes constitute an important phase of literature. Their writers, sometimes called the nonsense poets, are generally unknown. Perhaps no little portion of their success in capturing their readers' interest down to the present day lies in their adeptness in having simply presented fundamental physical situations with a psychic slant. For example:

When Jack's a very good boy,
He shall have cakes and a custard;
But when he does nothing but cry,
He shall have nothing but mustard.

E. Maria Gordon, a Minneapolis artist, has made a number of pictures, using nursery rhyme lore as background, always selecting one of the many subjects found in such literature touching upon product and legend of miller and baker. The rhyme that is illustrated on the cover of this issue is one of the less common to children's recollections of this day. The original from which the black-and-white halftone was made is in water color. Quoted fully the jingle reads:

The lion and the unicorn
Were fighting for the crown;
The lion beat the unicorn
All round about the town.
Some gave them white bread,
And some gave them brown;
Some gave them plum cake,
And sent them out of town.

In her nursery rhyme series Miss Gordon follows the lead of an English artist, Henry Matthew Brock, who provided a number of colored cover designs for this journal within recent years, using the more familiar of the mill-and-baker rhymes, notably "Simple Simon," "The Queen of Hearts," "Blow, Wind, Blow," "Good King Arthur," and "Pat-a-Cake, Pat-a-Cake, Baker's Man."

▪ ▪ ▪

CHRISTMAS PRAYER

With this year's asking of His Grace,
I think of some strange, far-off place
Where Christmas is the memory
Of laughter, feasts and charity;
And to that land where souls have bled
I turn my humble prayer—
"Give each his daily bread."

ROSALIE BARNETT SPINDLER.

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3 years - - 5.00

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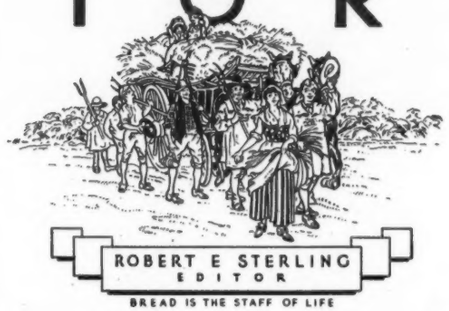
EDITORIAL



TIME FOR ACTION

ON page 13 of this issue we are reprinting the full text of an editorial which appeared, double leaded for emphasis, in our issue of last June 16.

At that time there were only occasional faint questionings as to whether the then steadily broadening program of using perfectly enormous quantities of wheat for animal feeding, alcohol production and miscellaneously for mending cracks and plugging holes in the entire food, feed and world-relief vision, might not sometime lead us into a much more serious bread-for-human-food position than then appeared.

Six months have passed since that time and the record of wheat use and misuse in the period fully justifies the prophecies made in our midsummer comment. It is true that the Nov. 17 figures of the Bureau of Agricultural Economics, quoted in the Millers National Federation committee discussion and protest made public last week, suggest a total disappearance of but 1,175,000,000 bus as against our June guess of 1,275,000,000 bus. But the committee itself questions the official figures as probably being much under the fact, emphasizing that, in the matter of feed wheat alone the bureau estimate may be as much as 140,000,000 under actual use. This would make our own June figure an understatement.

Taking these figures at their face suggests a carry-over next July 1, not of the already insufficient wartime prospective safeguard of 284,000,000 bus, but of a bare 144,000,000 bus, 100,000,000 below any low of recent years and only one fourth of the 1942 carry-over. As against this there are the big plans for importing 100,000,000 bus of wheat from Canada, but with little real prospect of getting much more than a third of that amount into usable position over the hump of winter-closed lakes and rail transportation already overburdened to the breaking point. It must be kept in mind that imports of wheat, whether from Canada or under the largely visionary program of securing supplementary supplies from Argentina and Australia, by no means mean flour, or even feed, unless they can be brought into processing position, chiefly at the expense of long hauls to interior milling facilities.

Concluding its survey of the situation and prospects, the federation committee makes three specific suggestions, as follows: (1) discontinue sale of feeding wheat by CCC except from presently owned stocks; (2) limit the whole amount sold for feed to 50,000,000 bus for use only in distress areas; (3) reduce wheat use for alcohol distillation to bare nonwastage need after using all other available materials.

These proposals are sound enough so far as they go, but in our judgment they are wholly insufficient either to effect the urgently required economies or to jolt the complacency at Washington, which apparently regards the current emergency as wholly one of supplying animal feeds and so depends largely upon the long-time magic phrase "wheat surplus" for our domestic bread supply in the year ahead, to say nothing of the large plans and already considerable use for armed forces and civilian feeding at many places in the world.

It is to be noted too that the federation survey, along with most other discussions of the current and prospective future wheat position, makes no mention of the present position of the winter wheat acreage seeded for the next harvest. Yet not only is it clear that the visionary seeding "goal" has not been realized but that millions of vital acres seeded are in probably the least promising position in many years. In point is the state of Kansas, with a "goal" of 17,000,000 acres and an actual seeding millions short of that, with the thinnest subsoil moisture in recent years and vast areas either not yet seeded, not sprouted, or with plants dying in the fields. A comparable condition exists over a large part of the four southwestern states which last year produced a quarter of the country's enormous total wheat crop and for 10 years has produced an average of nearly one third. Should that great area be stricken as it has been at times in years past, we might very easily find ourselves with a 600,000,000-bu harvest and the smallest total supply in recent years.

Borrowing trouble, perhaps. But wartime is the season for borrowing, or certainly seriously anticipating and providing against trouble; and quite obviously at the moment few people in authority are doing either. We cordially commend the federation's activity and also the belated attention to the subject by the Chamber of Commerce of the United States. But it is our guess that action rather than opinion now is greatly needed, and that our grandiose plans for feeding the world well might yield slightly to accommodate reasonable concern about the wherewithal for the bread certain to be so sorely needed.

——BREAD IS THE STAFF OF LIFE——

ARMY FLOUR BUYING SQUEEZE

WE have on more than one occasion in recent months commended the modernization of army flour buying methods by abandonment of the former archaic system of inviting bids under specifications and in units of weight contrary to general trade custom, so that the orders went largely to those specializing in public contracts. The over-all result of this was that relatively few millers shared in the business and the army probably often fell short of getting its money's worth in either quality or price.

The commended changes from this method included the transaction of business in accepted units of weight, normal standards of flour grades and qualities and under a system which gave all millers reasonable opportunity to compete in a fair and equitable distribution of army business. Later on, a tendency to pressure the industry in the matter of price developed. That was not in itself greatly to be objected to because obviously it is the job of army buyers to get good flour at least cost, a practice not too widely current in government buying, as is evidenced by the great amount of nauseous "renegotiation" now in process.

Which brings us to the position of the moment. This situation is that the authority of government has seen fit, in protecting the public interest, to fix ceiling prices on flour. These ceilings are determined to be fair and equitable, with a view particularly to the requirement of the price control law guaranteeing a fair return to processors of agricultural commodities. In substance and in fact the ceiling price on flour is the officially determined *fair* price for flour. This is further emphasized by the recent establishment of a treasury subsidy paid directly to processors to enable them to buy wheat at the market, or even at computed *parity* price, and still supply consumers, including the army, without loss.

Yet, on the evidence of recent purchases, the fairness of this price is not conceded by the army. On the contrary, it is emphasizing the commercially competitive factor by buying only at prices substantially under the government-approved ceiling and thus denying a share in the business to millers unwilling or unable to use the government subsidy to sell flour to the government itself at less than the officially approved fair price. Our somewhat halting skill in mathematics finds it difficult to bring to balance the dishing out of government subsidies to insure a fair price to the buyer and then putting a squeeze on the seller to recover a substantial part of it by paying an unfair price.

The government, as the largest single customer of the milling industry, possesses exceptional "buying power." It also has the advantage of a certain obligation felt by many millers to do their fair share in supplying armed forces and lend-lease requirements. Not to say that any buying agency should waste public funds through overpayment for needed commodities, it is yet fair to say that it should not take advantage of its position unduly to break the fair price level.

——BREAD IS THE STAFF OF LIFE——

EXPORT CONTROL RELAXATION

MILLERS who export some part of their products to Latin-American countries are gratified to learn that government restraints on trade with those markets shortly will be so relaxed as to permit virtually free commerce save for such continuing controls as are deemed necessary to prevent overstocking and provide safeguards against the possibility of recurrence of insufficient cargo space.

While this relaxation of shipping controls in effect for many months past is primarily the result of increased supply of cargo ships and reduced enemy interference with shipping, some part of the credit must be accorded to the relationship of mutual confidence which has long prevailed between responsible officials of the Office of Economic Warfare and officials and members of the Flour Millers Export Association. Many difficulties beset these relationships in the early months of control, due in principal part to the essential difficulties of the whole position, but in some part also to millers finding trouble in agreeing upon space allocations and thus providing the harmony of purpose so necessary to success of the effort.

Fortunately, after a period of somewhat rough going, the tolerance and fairness of officials of government coupled with the patience of leaders in the organization of the Flour Millers Export Association and the industry of its officers developed into a working accord which kept trade moving with increasing satisfaction to those sharing in it.

The whole principle involved in either government-imposed or self-imposed restraints upon overseas trade is repugnant to the spirit of free enterprise. Yet, not only in wartime but very likely through many years of the following peace, world-wide controls of international trade are certain to make essential such organizations as the Flour Millers Export Association; and the milling industry probably can regard itself as fortunate in that its first experiment in this direction has been so capably handled and, considering the difficulties overcome, so generally successful.

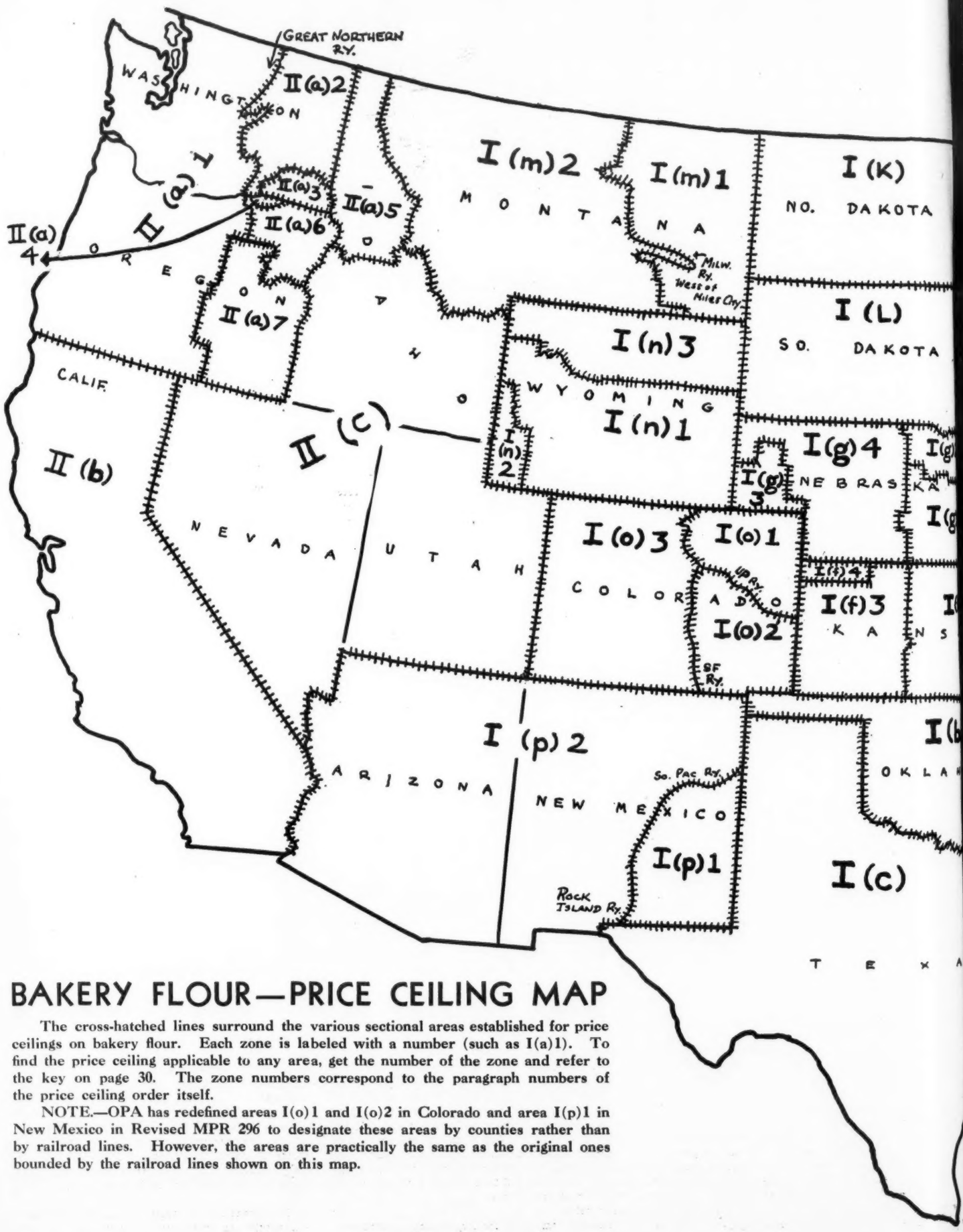
——BREAD IS THE STAFF OF LIFE——

TAXES AND REHABILITATION

THERE is a certain amount of encouragement in the circumstance that Congress, probably influenced more by political considerations than intelligent understanding, is so stubbornly resisting administration demands for more discriminatory and punitive income taxation. Assuredly the tax income is needed if the defense against inflation is to be successful. But the dangers of administration schemes to bleed the nation white of free income and resulting free enterprise investment capital are certainly equal, in their postwar effects, to the larger debt in prospect as the result of currently insufficient taxation.

Now and then we come upon a faint suggestion, hardly to be heard amid all of the current furor of postwar planning, that almost none of the present lower-bracket income—a term now applied to wage earnings up to five thousand dollars per year—will be saved and thus be available for postwar rehabilitation. On the contrary, all of the billions soon to be required for that purpose must be supplied by corporate or individual savings, the former already virtually impossible and the latter squeezed to the point where both industry and thrift have become dubious virtues.

The alternative, of course, is that the government will supply the rehabilitation capital; and we have yet to see a reasoned discussion of the relationship between that and the dreaded inflation.



BAKERY FLOUR—PRICE CEILING MAP

The cross-hatched lines surround the various sectional areas established for price ceilings on bakery flour. Each zone is labeled with a number (such as I(a)1). To find the price ceiling applicable to any area, get the number of the zone and refer to the key on page 30. The zone numbers correspond to the paragraph numbers of the price ceiling order itself.

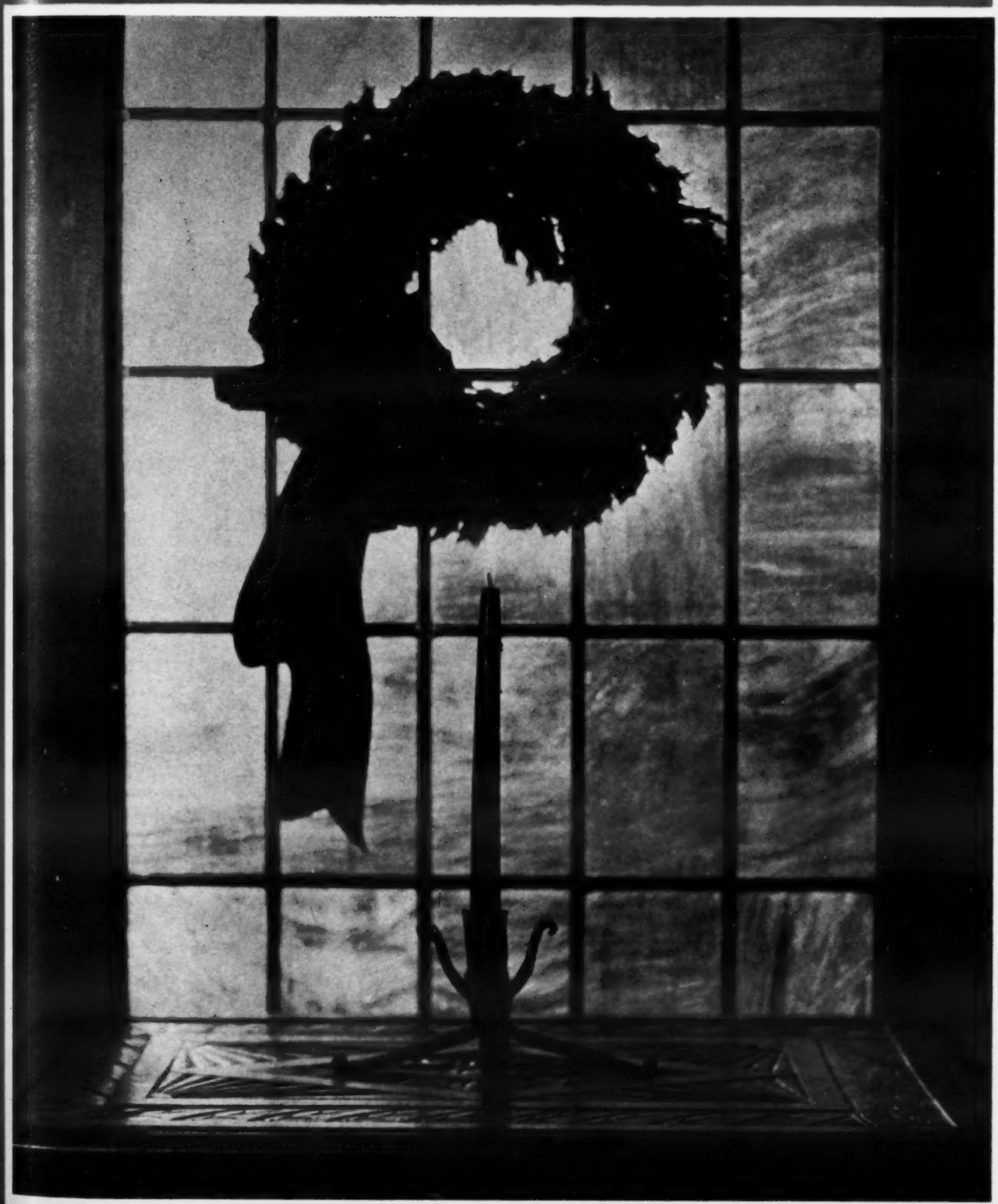
NOTE.—OPA has redefined areas I(o)1 and I(o)2 in Colorado and area I(p)1 in New Mexico in Revised MPR 296 to designate these areas by counties rather than by railroad lines. However, the areas are practically the same as the original ones bounded by the railroad lines shown on this map.

The·Northwestern·Miller

MILLING PRODUCTION SECTION

DECEMBER 8, 1943

IN TWO SECTIONS—SECTION TWO



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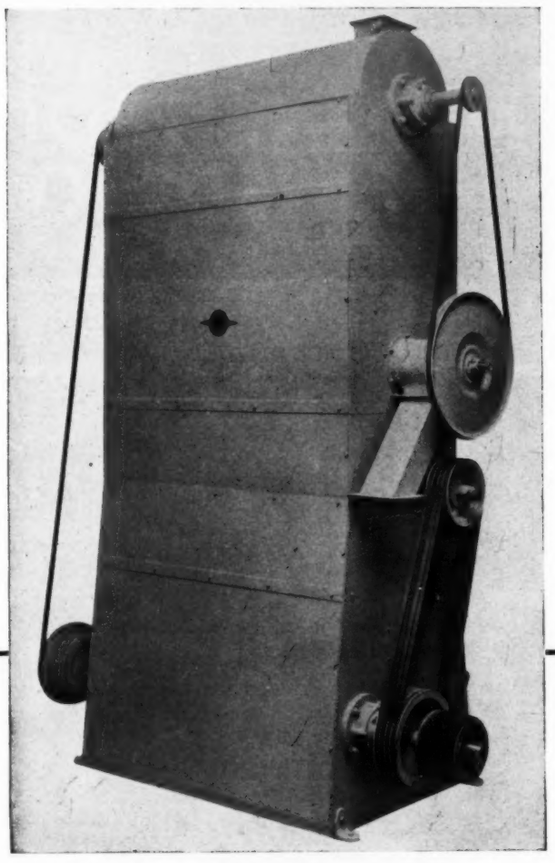
Volume 216 • Number 10

The Forster DUSTER

for BRAN *and* SHORTS



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MODERNIZE your mill with all steel brushless Dusters for more efficiency, lower power requirements, no brushes to buy, no cloths to replace, less space required.

The Forster Duster will save many man hours in maintenance as it requires no setting of brushes or replacing of cloths to keep in efficient operation. The machine is at top efficiency every day of the year; modern for war-time production, and profit-making in the post-war period.

Let Forster help you on your duster requirements. If your old machine is in need of repairs, replace with a Forster Duster. Forster can handle your priority needs, and make prompt shipment of the new and modern Duster.

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LEATHER BELT SALVAGE

★ ★ ★ ★ ★ ★ ★ ★ ★

IN these days of shortages and priorities coupled with increased production it is vitally important to have a practical salvage program on belting and drive components. Usually about three fourths of a discarded leather belt has salvage value. All that is required to put that usable three fourths back to work again are (1) a leather scraper, (2) some good quality animal glue or waterproof cement, and (3) a splitting gauge.

There are four classes of belting that find their way to the scrap pile. All four classes have salvage possibilities. In many instances a belt is discarded because of a change of machines or drives and a different length and/or width of belt is needed.

Many times a double-ply belt ends up on the scrap pile just because one side is worn. Double-ply belts can be reworked and the ply that has not been next to the pulley rebuilt.

Other belts with only one or two bad spots are discarded and left on the salvage pile. The fourth class of belting with salvage possibilities are those short ends—the left-over from fitting new belts.

There are three methods of rebuilding double belts in common use. The best method is to cement two good plies from two old double belts. The cost

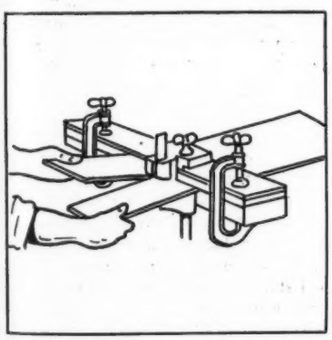


Fig. 1. This shows the construction of a belt-splitting gauge, used to split salvaged belting into usable widths and to trim the edges of rebuilt belts. The guide blocks are held firmly by the clamps on the ends and the knife may be adjusted with the thumb nut lock.

is less and the potential stress is about equal on both plies.

A second method consists of cementing a fabric back to an old leather ply. This is the next best method because the fabric has little stretch, and because only one side of the belt can be used to contact the pulleys. Another advantage of backing up a leather ply with fabric is that it produces the maximum footage of usable belting from the available salvage material.

Cementing a *new* ply to an *old* salvage ply is the least desirable method of belting reclamation because the new ply will outwear the old ply and secondly because of the fact that the stretch in the new piece of belting will be greater than in the old ply which has had most of the stretch taken out of it.

BELTING MUST BE CLEAN

The first step in reclaiming leather belting is to clean the salvaged pieces. Solvents that can be used safely include *unleaded* gasoline, naphtha, kerosene, benzol, carbon tetrachloride, alcohol, baking soda, and water.

If gasoline is used, be sure it is not leaded or "ethyl" gasoline for the chemical in leaded gasoline is harmful to leather.

When cleaning a belt, the first thing to do is to immerse it in the cleaning solution overnight, standing the belting on edge in a loose roll so that the solution can get to all parts of the belt. Then reverse the roll of the belt and let it stand for another 10 hours.

Which Is *Your* Belt Salvage Pile?

This?

. . . Or This?

After the belt has been thoroughly soaked, clean the loose dirt and dressing by brushing and scraping. Then hang the belt up and allow it to dry. The belt should not be allowed to sag when drying, but should be supported at several places.

If a petroleum solvent such as gasoline, benzol or naphtha is used, care must be taken to avoid any danger of an explosion or fire. Be sure to hang the belt away from any open flame or other hazard which would ignite the gases.

Cutting and splitting the belt is the second step in the salvage operation. First, all bad spots should be cut out. These can be found easily after the belt is cleaned and dried.

Secondly, separate the plies, then match the good ply of one belt with a good ply of another. Try to pair up the plies so that they have about the same potential life left in them. Then when the rebuilt belt wears out, it will wear out similarly to the wonderful one-hoss shay of storybook fame.

TRIM TO USABLE WIDTHS

After the belting has been separated and the plies paired, two or three popular widths of reclaimed belting should be decided upon. It will be easy to determine this, for the belting maintenance man will know what widths are needed most frequently.

The belting now is split down to the sizes needed. When cutting down wide belts—belts of more than eight inches in width, they should be cut according to a definite plan because belts of that width and more are cut from the center of the hides with the part that lays directly over the backbone—the thickest part of the hide—running through the middle. This "backbone" helps to keep the belt running straight when it is in the center of the belt. Thus a belt split so that the backbone is off center will have a tendency to run crookedly.

Such would be the case, for example, where an eight-inch belt had been cut into five-inch and three-inch belts.

KEEP BACKBONE IN CENTER

In reducing the width of a belt by splitting some off, the belt must be split equally from each side. An eight-inch belt could be split into two three-inch belts and one two-inch belt, the two-inch belt to contain the backbone.

Another possibility for reclaiming an eight-inch belt is to take a two-inch belt from each side, leaving a four-inch belt with the backbone in the center. The backbone must always be in the center of the belt in which it is included.

After the belting has been cut down, it is ready to be reglued and joined. Many belt men prefer hot or animal glue for this work. The glue should be brushed on the bonding sides of both plies and the belt glued together quickly. The back of the scraper should be used to iron out any air pockets or "blisters." After the belts have been reglued, allow the piece to set for at least three hours.

After the belting has set, it is ready to be joined. Figure the length needed, allow for the lap in rejoining and then trim. Join the belt so that the grain (hair) side of the belt will run next to the pulleys. A joint for double ply belting is not any more difficult to make than one for a single ply belt. See the diagrams for details of joining belting, either single or double ply.

When the plies are glued together and joined into lengths or rolls, the belt should be run through a splitting gauge to even up the belt and take off any ragged edges that soon would be frayed by idler or guide pulleys.

Next, apply a good belt preservative to the finished belt. If it is not to be placed into immediate service, tag the belt, stating on the tag its width, length, recommended use, condition, date of reclamation, and any other information that will supply the answers to questions that might come up.

Much of the salvage work in belting can be eliminated, however, by conducting a good maintenance program on belting. Belting troubles should be analyzed and routine inspections of all belting will, in many cases, prevent excessive wear or damage to belting. There are many causes of abnormal belt wear.

Overloading will shorten the life of the belt and cause unnecessary—and avoidable—trouble. Select the proper width of belt. All belt manufacturers supply ratings with their belts. See that the belt load does not exceed the manufacturer's recommended loading.

When belts are run over a pulley that is less than the recommended diameter, they are subjected to severe flexing or bending and to stresses that shorten their life and decrease their pulling capacity. Again, consult the manufacturer's tables of recommended pulley diameters.

Logically, a greater amount of pulley surface in contact with the belt gives the belt greater pulling power. Make the necessary allowance for the amount of contact between pulley and belt.

CHECK PULLEY ALIGNMENT

Another detail to watch is the alignment of pulleys and shafting. Be sure the belt rides the crown and not the side of the pulley. When belts are running over misaligned pulleys, they tend to run off or will climb up on flanged or step-cone pulleys.

Put the slack strands of flat belts on top. A belt on a horizontal drive with the slack strand on top will increase the amount of contact between belt and pulley and consequently increase the pulling power of the belt.

Do not turn a belt into a brake band.

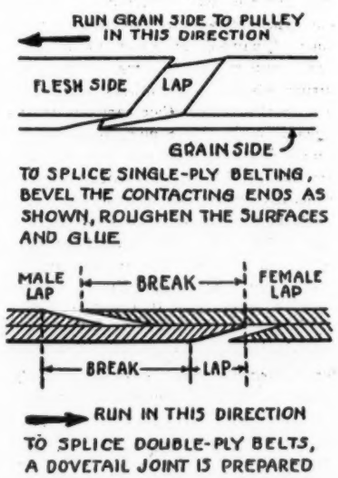

RUN GRAIN SIDE TO PULLEY IN THIS DIRECTION
FLESH SIDE
LAP
GRAIN SIDE
TO SPLICE SINGLE-PLY BELTING, BEVEL THE CONTACTING ENDS AS SHOWN, ROUGHEN THE SURFACES AND GLUE
MALE LAP
BREAK
FEMALE LAP
BREAK
LAP
RUN IN THIS DIRECTION
TO SPLICE DOUBLE-PLY BELTS, A DOVETAIL JOINT IS PREPARED

Fig. 2. Shown above are detail diagrams to show the proper method of splicing single- and double-ply belting.

That is exactly what it becomes when a belt is allowed to slip. Belts were not designed to act as brake bands and such friction will soon wear out or "burn up" the belt.

Avoid overloads. Any saving or ad-

(Continued on page 16a)

Some Interesting Observations on

Roll Corrugation and Mill Efficiency

By C. D. Smith

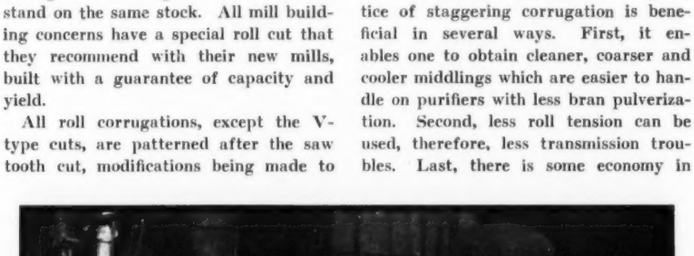
EDITOR'S NOTE.—**Mr. Smith, the author of the article below, is superintendent of the Lindsey-Robinson Co., Roanoke, Va. The article was presented on the program of the fall meeting of District 11, Association of Operative Millers, held at Knoxville, Tenn.**

THE art or skill in roll corrugating is precision work, and should not be attempted by an amateur. When rolls are returned from the machine shop and have a 2½" to 3" strip on them running the length of the roll with the spiral that seems to have had a different tool used, it is an indication that the man in charge of the corrugating machine has made a mistake in calculating the circumference of the roll and has to split the lands to coincide with where he started the operation. Or perhaps something has slipped in the operation and this narrow strip (narrow as it would seem) will turn out a variation of middlings that will find their way to the dustings section and purifiers, and finally to the middlings rolls. It is pure folly to entrust rolls to the hands of roll corrugating "learners."

TYPE CORRUGATION

Roll corrugations play an important part in the milling system and the production of high grade flours. There seems to be no fixed standard for either break or middlings rolls corrugation. Therefore, many millers may disagree with most anything mentioned in reference to the type of corrugation, spiral, and differentials used on break and middlings rolls, and they may have good reasons for difference since they have different conditions under which they are forced to use their corrugations, spirals and differentials. Differences arise in the types of wheats and the types of flour demanded of them to produce. Some millers are milling durum and spring wheats, while others are milling Michigan white or other varieties of soft wheats, so in this report, it is not intended to recommend any fixed standard for this or that type of corrugation to be used in particular operations, as this would be far too much to expect of most any miller. Different mills have their individual problems that are similar, yes, but are not exact in fact, so to select the type of corrugation that is best suited to individual operations is for each superintendent to judge; but don't think for a moment that the type of corrugation is not an important factor in the production of high grade flour. I cannot wholeheartedly agree with a roll corrugating man who once told me that he didn't believe that type of roll corrugation meant nearly so much to milling as most millers seemed to believe. He said that he believed that 50% of the different types of roll corrugation were the personal whims of the millers. I will grant that the roll corrugator is about 10% correct, but he is not a miller, and has not had the opportunity to observe the vast difference in quality, capacities, and good yield resulting from dull rolls; or to have a chance to observe the contrast between middlings produced from deep and from shallow corrugation running in the same roll stand on the same stock. All mill building concerns have a special roll cut that they recommend with their new mills, built with a guarantee of capacity and yield.

All roll corrugations, except the V-type cuts, are patterned after the saw tooth cut, modifications being made to suit the different types of wheats. Almost any of the so-called standard corrugations give good results if used in a manner adapted to that particular cut and the type of work for which it is intended. After experimenting with the cut one may find that this particular type of cut is too deep or too shallow to produce desired results. There are still other types of roll corrugations from which to choose. I know a mill superintendent who uses a V-type corrugation on a certain break in his mill and he swears by the modified Dawson cut on all other breaks in his plant. It is, however, very important to select and secure the type of corrugation to suit the particular operation, whether it be Riley, Allis-Chalmers, Nordyke & Marmon, Dawson, Saw-tooth Jewell or the V-cut or any other that is offered, so long as about 25% extraction is obtained through an 18-wire cloth on first break, not less than 35% through 18-wire cloth on second break, 18% through a 22-wire cloth on third break, 13% through a 30-wire cloth on fourth break, and 9% through a 32-wire cloth on fifth break.



Cutting the corrugations in a break roll requires precision machinery and a machinist who possesses the "know-how." Shown above is a milling machine in operation, corrugating a 9"x30" roll. The cutting tool has five "teeth," each progressively deeper so that each groove has five cuts taken in it as the machine automatically advances one groove at the end of each stroke.

SPIRALS

The majority of millers are using a ½" spiral on break rolls. This is not a fixed standard. I am informed that some millers use only ¼" spiral while others use ⅝" to ¾" on break rolls. Still others stagger their spirals as well as stagger their corrugations.

The writer has observed that the practice of staggering corrugation is beneficial in several ways. First, it enables one to obtain cleaner, coarser and cooler middlings which are easier to handle on purifiers with less bran pulverization. Second, less roll tension can be used, therefore, less transmission troubles. Last, there is some economy in this practice. The fast roll is revolving about 2½ times as fast as the slow roll. Therefore, it comes in contact with the stock just that many more times than the slow roll. When I stagger our roll corrugation, the fast roll is cut about two grooves per inch coarser than the roll running opposite, and is likewise corrugation, the fast roll is cut about before it is necessary to recorrugate. Rolls staggered in corrugation will produce satisfactory results for several months longer on stock than will rolls not staggered in corrugation on the same stock.

DIFFERENTIALS

Differentials have become standardized to a much higher degree than type of corrugations and spirals. Two-to-one is used largely on corrugated middlings rolls. Two-and-one-half-to-one is used principally on breaks and 1½-to-1 on smooth rolls. However, it has been found that differentials can vary considerably from the so-called standard and will not produce the noticeable effect as it would have produced, had the corrugation or spirals been changed.

CORRUGATED MIDDLINGS ROLLS

Corrugated middlings rolls received a black eye several years ago for a number of reasons, some of which I will mention here. First, when scratched rolls for middlings were first advocated, we got just what we asked for, "scratched rolls," and nothing more. They were not really corrugated at that time, as we know the term today, but cut as shallow as possible.

Second, all types of middlings to be reduced were placed over these rolls, even sizings with the germ stock, and I heard of one miller trying scratched rolls on tailings stock. He said though, it wouldn't work—too much ash involved.

Third, at that time practically all experiments with scratched rolls were made by using ½" spiral per foot, which is one of the worst mistakes perhaps of the three mentioned. One half inch spiral is about correct on break rolls producing middlings, but is not sufficient spiral to reduce middlings. Corrugated middlings rolls, with only ½" spiral, will throw ragged and pointed middlings flour granules which will not bolt properly and under a slick test will cast shadows that affect color. That corrugated middlings rolls used on dirty stock will throw flour with a higher ash content than when the same dirty stock is ground on smooth rolls is not denied, but corrugated middlings rolls are used extensively and satisfactorily today, but to get the best results from them, we are forced to use a higher degree of spiral than ½" per foot. The most desirable spirals on middlings rolls range from ¾" to 1½" per foot, this depending entirely on the stock involved.

Only clean middlings should be allowed to reach corrugated middlings rolls. There are several advantages in using corrugated middlings rolls. First, we can stand off with our rolls on patent flour stocks and avoid overgrinding, thereby producing a flour that will have fewer ruptured starch granules, and will stand up under the final test of the oven which, after all, is final and the test from which we expect to obtain repeat orders.

Second, we can improve our capacity in some cases as much as 6% to 9% by corrugating middlings rolls on the head of the mill, and with less roll tension which in turn results in less friction in grinding and with much less power required.

Some millers object to using corrugated middlings rolls on the grounds that they have a tendency to increase the ash content in flour. This is true when middlings are allowed to pass to corrugated rolls that have not been properly classified and purified. But with clean middlings on corrugated rolls, we can get only the ash content prevalent in the endosperm which varies with the type of wheat being milled.

Corrugated middlings rolls will reduce a much higher percentage of total stock allowed to pass through than smooth rolls, so the percentage of reduction has to be taken into consideration before reaching a definite conclusion with reference to more ash per unit of reduction with corrugated rolls over smooth rolls.

(Continued on page 15a)

Advice About the Gentler Sex

Managing of Women in Flour Mills

By Margaret Kay Anderson

MANY branches of the food industry — particularly canning and processing—have always been large employers of women, but the appearance of the gentler sex in a flour mill is something quite new. Flour mills can take their stand along with machine tools, iron and steel, oil refineries and railroad shops as pioneers among basic industries in the utilization of America's woman labor force.

Now that you are employing women—how do you find it? I dare say it is not all clear sailing—there are adjustments to be made, new policies to be formulated and a new outlook on many things you had thought established forever in your mill. And the adjustments have included more than telling the men not to swear or make passes at the girls and advising the foremen not to browbeat the women into a flood of tears. I imagine that by this time you have learned that women can do hard, dirty jobs without complaint and that a tolerance of their so-called sensitive emotions won't upset production schedules. I've seen women washing locomotives, scraping carbon from pipe lines, welding ships in dungeon-like bottoms. They do these jobs well and the proof of their worth lies in the fact that heavy industry is hiring more and more women to do these jobs.

Once it is accepted that women can do these jobs the only problems remaining are making minor adjustments in plant housekeeping and setting reasonable work standards. Here it is that we come face to face with such issues as weight lifting, rest periods, lunch hours and food facilities, sanitary arrangements, pay rates and counseling service for women. Let us consider some of these.

Weight lifting is of particular importance in flour mills because jobs are soon encountered requiring exceptional physical exertion as women are taken on in any numbers. Rather unusual stories are constantly turning up about Annie Amazons who lift 50-lb steel bars and feed them into a screw machine eight hours a day. Annie says she can do it because she used to be an acrobatic dancer. It all makes a good news item, but I'm afraid the ex-dancer is a phenomenon and not the average woman worker. There are perfectly sound reasons why many states have enacted laws prohibiting women from lifting more than 25 lbs. It takes a woman with a large frame and great muscular strength to be able to lift more than this amount.

There are standards for weight lifting and here they are, in brief:

Keep the back straight and bend from the knees only.

Don't jerk. Keep arms straight.

If lifting with another person, lift and let down at the same time.

Use of proper methods of weight lifting save human energy and prevent accidents. Science has found that the strength of the average woman is a little more than half that of the average man. Unless this fact is accepted and precautions taken women workers will develop skeletal deformities and abdominal alterations which will torture them the rest of their lives.

Standards for meal and rest periods help in this conservation of the worker's energy and prevention of accidents. Along this line it might be noted that men and women differ slightly in the need for adequate time for eating and resting, although men can stretch their energy further than women can.

A lunch period is too short if it does not give the worker time to leave the workroom, wash and eat a well-balanced lunch. She *should* have a few minutes for leisure afterward. If the workday is six hours or less a shorter break for lunch is sufficient providing rest periods are allowed. This problem of lunch hours is particularly important if workers handle harmful substances or are exposed to dust and dirt, for time must be given for a thorough washing. Also, if the lunchroom is inadequate to serve a large work force quickly, time enough should be given so that workers won't have to gulp down food and then perhaps be out sick for two days with an attack of acute indigestion. Ignorance of or disinterest in the elemental physical needs of the worker never saved any

(Continued on page 15a)

THE PARADE OF THE PIONEERS

★ THE MORMON MIGRATION ★

In February, 1846, having been virtually driven from the state, the Mormons turned their backs on Nauvoo, Illinois, and set out across the western prairies to found their new home on the banks of the Great Salt Lake, where, they thought, they would be free from governmental and civilian interference, but it was not until the latter part of the century that peace between the Mormon church and the United States was a reality.

Despite long periods of hardship and troublous times, the courage, thrift and foresight of the old leaders has brought prosperity and self assurance to the vast territory they were instrumental in settling.

Millers who long ago settled on Swiss Silk as their bolting medium know that they have enjoyed the utmost in economy, capacity and durability. Over a century of satisfactory service has made it a wise habit to

Specify "SWISS SILK"

BODMER • DUFOUR • EXCELSIOR • SCHINDLER • WYDLER

Passing Time Away No Problem

GEORGE CORMACK NOW A BUSY RANCHER

Retirement to Him a Change of Jobs

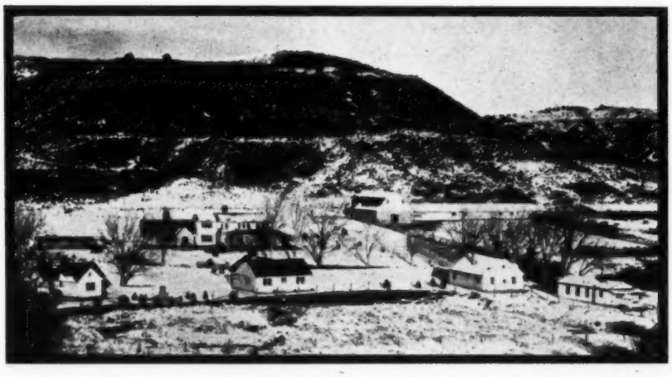
★ ★ ★ ★ ★ ★ ★ ★ ★ ★

WHEN George Cormack resigned his position with General Mills, Inc., in 1938 he made it plain that he was not "retiring" in the usual sense of the word. Mr. Cormack had retired as director of manufacture for his organization in 1935 and stayed on for three years in an advisory capacity. But in 1938 he had completed 50 years of association with the milling industry, 33 of those years in the service of the Washburn Crosby Co. and General Mills, Inc., and he expressed the belief that his golden anniversary marked a proper time for a change to something else.

Mr. Cormack was born and grew to manhood in Aberdeen, Scotland. Scotchmen traditionally are engineers or livestock breeders. Mr. Cormack is both. When he left his position as an engineer in the milling industry he turned to livestock. He left his hotel suite, took a bride and went to the wide open spaces of Montana and Wyoming.

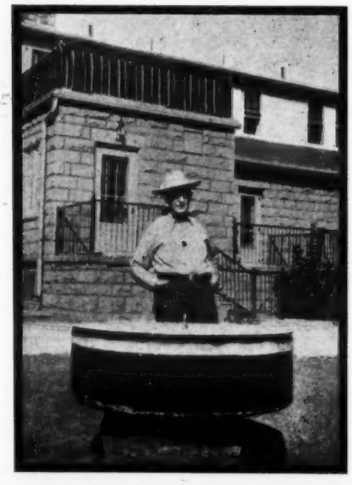
The Cormacks did not adopt livestock as a "hobby" but went into the business on a business basis by buying a ranch near Lewiston, Mont., and another near Sheridan, Wyo. The "CX" ranch at Sheridan is the home ranch. This season the ranches are stocked with more than 1,500 head of cattle.

More than six feet tall, Mr. Cormack is as active and energetic as he was when a young man. Through and through he is an engineer—meticulous, exacting and orderly. The layout of the "CX" ranch is efficient and modern. The Cormacks built a new house of the colorful igneous rock from their own quarry. The engineer's hand is seen in the powerhouse, housing three electric generating plants laid out with the precision of the roll floor in a flour mill. Included in the buildings is a separate studio where Mrs. Cormack, an artist, does her painting.



Here is a panoramic view of the Cormack ranch house and other buildings, nestled down in a valley between rugged hills in Wyoming. The Cormacks built their house from stone quarried on the ranch. Mr. Cormack says these surroundings are "quiet and peaceful," as compared with the hustle and noise of city life.

This photograph was taken in the Cormack home on the CX Ranch near Sheridan, Wyo. and shows Mr. Cormack seated at his Hammond organ, a wedding present from his wife. The oil painting on the wall was painted by Mrs. Cormack.

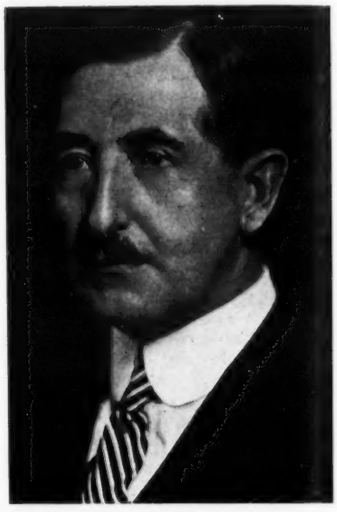


When Mr. Cormack "quit" the milling industry and turned to ranching as a business, he took along with him an old stone mill wheel which he has mounted on a pedestal near the ranch house. Mr. Cormack looks the part of a rancher in the picture, with his wide-brimmed hat, wide belt, etc.

"Living on a ranch is quite a change from city life, lacking the rumble and noise of the city," Mr. Cormack said recently in commenting on the change after five years. "There is the clear sky, the wide open spaces, clean air and a sense of peacefulness on a ranch."

Mr. Cormack said that there never is a dull moment on his place. "Many of my friends have asked me what I do to pass the time," he said. "Spare time is one thing I have least of."

"It was no hardship to change my mode of living—from that of a city dweller to a rancher—or to adapt myself to the new business. In fact it has been a real pleasure and undoubtedly increases one's life expectancy," he said.



George Cormack

This photograph of Mr. Cormack shows him at the time he was superintendent of manufacture for General Mills, Inc.

The Cormacks have not severed all connections with the milling industry and its people, however. Last June they attended the national convention of the Association of Operative Millers in Kansas City, and spent the week renewing old acquaintances and making new ones.

Mr. Cormack's business is raising cattle and for a hobby or "sideline," he raises Palomino horses. The Palomino breed was brought to this continent from Spain by the explorer Cortez in 1519 and the breed is a favorite in the West. Mr. Cormack sold his Palomino saddle horse recently and the others, he said, have not been broken to ride. "We sold 20 colts last year and have a new bunch coming on," he said.

The ability to play an organ is another of Mr. Cormack's accomplishments. Mrs. Cormack gave him a Hammond organ as a wedding present. He had not played an instrument since the old parlor organ back home in Scotland, but his music came back quickly. His favorites are hymns, light classical music and old folk tunes such as "I'll Take You Home Again Kathleen."

When Mr. Cormack resigned as director of manufacture for General Mills, Inc., he was recognized as "the biggest operative miller in the world." He had charge of manufacturing in 22 mills with a combined total production capacity of 80,000 bbls per day. Now he is an established livestock breeder. Most men are content to "pass the time away" after 50 years of service to an industry. To Mr. Cormack it was only an excuse to start in a new industry.

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Quality Problems of Soft Wheat Flour

By GEORGE GARNATZ

The Kroger Food Foundation, Cincinnati, Ohio

A discussion of the problem created by the increasing protein content of soft red winter wheats in the central states, presented at a recent meeting of the American Society of Agronomy in Cincinnati.

★ ★

THE biscuit and cracker industry is one of the major users, if not the largest user, of soft wheat flours. This is so because the flour obtained from soft wheat as contrasted to that from hard wheat is so much better adapted to turning out biscuits, crackers and cookies of the most desirable properties. With such dependence on soft wheat it is only natural that those of us associated with the industry should have some interest in the work which is going on toward developing better varieties of wheat. I am even encouraged to advance some thoughts that have developed out of a number of years' experience with biscuit and cracker flours from the baker's standpoint, appreciating that the agronomist's conception of a well-bred wheat is one that provides not only for the farmer's and the miller's needs, but the baker's as well.

Before launching on an exposition of what has become a "pet" idea with me, it is desirable that some background be provided against which to contrast my thoughts in the hope that by this means the ideas I have to advance may be better understood.

The commercial production of cookies and crackers is an old industry and harks back even beyond the day of the cracker barrel to the era of the craftsman. As a matter of fact a considerable degree of craftsmanship still exists, but as technological advances in other fields cast their influence into this field, it is becoming necessary to work under conditions of closer control and within narrower limits of tolerance.

In the days of the cracker barrel probably the only concern that had to be exercised was for the quality of the finished product. Even so, I suspect that considerable latitude was exercised for, remember, the consumer had not yet been made freshness conscious and such quality as had been attained was soon modified by the effects of exposure to varying atmospheric conditions.

I doubt that any concern was felt whether the net weight of the contents of the barrel adhered to some predetermined amount. The period of standardization was not yet at hand.

KEENER COMPETITION

In the course of time competition became keener. In order to win the consumer's favor and offer her a better value, the cracker barrel was supplanted by the metal caddy with a glass paneled front and some effort was made toward attaining efficiency and effecting economies. Now the production picture encompassed quality, a measure of effective utilization of labor and some attempt at standardizing the weight of product in the container. If this was not realized through control of production, it was compensated for by putting in or withholding a few units from the container. The biscuit and cracker manufacturer of that day was not so closely regulated as to fill of container, with emphasis on slack filling.

Eventually we came to the present time with competition at its keenest. The production of crackers and cookies has been mechanized as never before. The demand is for highest quality and the requirements for uniformity and standardization, especially in connection with packaging in retail units, has put a great deal more emphasis on uniformity of raw materials as part of production control. Regulatory sources not only require that labeled statements on net weight be adhered to but that packages be reasonably filled as well. Unless the manufacturer of crackers and cookies has uniform materials with which to work and controllable conditions over the process then the conditions imposed by retail packaging place him between a figurative Scylla and Charybdis. He must first of all meet the regulatory requirements for net weight and fill of container. Then he must meet quality standards. Finally he must think of efficiency, which means he must hold overweight down to a minimum and must practice economy in the utilization of ingredients.

LOGICAL STARTING POINT

The logical starting point is flour. As never before the baker of crackers and cookies must have flour available to him of the type or types he needs, along with a high degree of uniformity within them. It is rather generally agreed that three types of flour are needed for cracker and cooky baking. One is used primarily for cracker sponging. It can be moderately strong as soft wheat flours go and should have a top viscosity value of 75° MacMichael as determined by the "no time" method in Cereal Laboratory Methods, published by the American Association of Cereal Chemists. A second type is moderately soft, is used for cracker doughing and hard sweet goods (such as graham wafers and the like) and should run from 40 to 50° MacMichael on viscosity. The third type must be very soft in order to make tender drop cookies and embossed goods. The viscosity for this type of flour should run not over 35° MacMichael and preferably under 30° MacMichael.

With the advent of band ovens in biscuit and cracker plants, a greater demand for the softest type flour has resulted. These ovens still further streamline production and pave the way for mass handling of material in the packaging operation. In addition to being well suited for cracker production, they lend themselves especially well to the production of embossed cookies which are in popular demand. This shift toward the use of a greater proportion of this softest type flour is presenting an increasingly more difficult problem to the baker in the Midwest from the standpoint of procurement.

For a given type cracker or cooky flour it is undesirable to exceed certain limits on strength for there is an ultimate limit to the compensation that the baker can apply. When these are exhausted the finished product suffers. It is true that a nominal increase in flour strength can be compensated for in cooky mixes by increasing sugar or shortening or both.

There are several objections to this. One is that such adjustments are based on personal judgment and places too much reliance on trial and error. This is conducive to variation in the product, if not in quality then in those factors which affect the packaging operations. Another is that sugar and shortening almost always cost more than flour. Therefore, any flour for a given application which is high in its sugar or shortening requirement is uneconomical. During these war times bakers have been made especially conscious of this not so much from the viewpoint of cost as the one of making the most efficient utilization of these rationed commodities. Finally, the desire to have flours relatively low in their sugar and shortening requirements is not altogether selfish. The weakest flours actually produce a better cooky for when used in a properly balanced formula a texture, tenderness and eating quality is obtained not realized with stronger flours that require more sugar. Such flours produce cookies that can be cloyingly sweet and that tend to be hard and taffy-like rather than short and tender.

Against this background delineating what the needs of the cracker and cooky baker are, we find a rather consistent and long time trend toward greater strength, at least in the soft wheats available to the Midwest area. The author has a very definite impression that for somewhat more than 10 years his problems on crackers and cooky flours have been concerned with more strength than is desirable in all three types of biscuit and cracker flour. In fact, the moderately soft type used for cracker doughing and hard sweet goods is practically nonexistent so that so far as the shops with which we are associated are concerned, we are now doughing with the cooky type flour, thus accentuating the problem of procurement of it. Here in the Midwest we have been relying on the white soft wheats from central Michigan for the very soft cooky type flours, but this variety too is increasing in strength either from natural causes or through increasing admixture with red soft wheat.

Apparently no encouragement is being given to increasing the yield of white soft wheat in step with the greater use of cooky type flour, with the result that its availability is becoming increasingly precarious. We have been driven to the extremity of bringing into our shops the very soft cooky flours produced in the Pacific Northwest area. While the delivered cost of such flour is generally greater than that shipped in by middle western mills the extra cost is economically sound on the counts of maintaining quality and conserving on sugar and shortening costs. That our experience is not unique is probably indicated by the observation that one cracker and cooky manufacturer with national distribution has just purchased a mill in the Pacific Northwest area.

AVERAGE PROTEIN

We have taken advantage of the opportunity to check our observations with a commercial laboratory specializing in the field of soft wheats. It will be interesting to note their comments. They say: "If we eliminate the two abnormal years (1933-34), we find there is a steady climb in protein on Ohio and Indiana red wheat and Michigan white wheat. The same applies to the Michigan red wheat."

Their averaged data on protein content of the wheat are included in the following table:

Year	Ohio red	Central Michigan white	Indiana red
1932	10.0	8.2 @ 9.2	...
1933	10.5	9.5 @10.5	11.0
1934	11.0	10.6 @11.5	11.5
1935	9.5	8.3 @ 8.45	10.0
1936	9.75	8.5 @ 9.2	9.75
1937	9.45	8.75@ 9.5	9.25
1938	9.85	7.95@ 9.0	10.0
1939	10.50	9.6 @ 9.8	10.35
1940	10.65	9.8 @10.25	9.75
1941	10.75	8.25@10.5	10.75
1942	10.50	9.85@10.25	10.75
1943	10.50	9.55@10.35	10.85

The records for an Indiana mill on a given grade of flour over a period of years show:

Year	Protein	Year	Protein
1928	8.20	1936	8.35
1929	8.25	1937	8.20
1930	8.75	1938	8.65
1931	9.25	1939	8.55
1932	8.85	1940	8.25
1933	8.90	1941	9.35
1934	8.95	1942	9.55
1935	8.40	1943	9.65

Again excepting the drouth years, the trend on this flour is a gradual increase in protein from 8.25 to 9.6%.

These observations at least lend some substance to the contention that the soft wheats grown in the Midwest area are tending to become stronger than they need be and in this respect are out of step with the requirements of a group constituting an important user of soft wheat flour. Since strength is a varietal characteristic conditioned by geographical location, it is suggested that agronomists give consideration to the apparent need of reducing the strength of soft wheat varieties grown in the Midwest. This should be done with the thought in mind that flours of three strength classifications are needed and that special emphasis should be placed on the encouragement of farmers, whose locations make it possible, to raise a greater amount of very soft wheat varieties. It is not felt that such action would be inimical to the interests of others. The three strength levels suggested will lend themselves to the production of cake flours and the strongest one should still permit the production of family or so-called all purpose flour.

By having a wider spread in strength

(Continued on page 11a)

If You're Interested in

Recovery of the B Vitamins

This Article Will Help

A study was made of the routes followed by the B vitamins—thiamine, riboflavin and niacin—during the milling of wheat by S. H. Jackson, A. Doherty and V. Malone, of the Department of Paediatrics, University of Toronto, Toronto, Ont. The wheat used was a hard western Canadian wheat and the milling was done by the Maple Leaf Milling Co., Ltd., at a normal extraction of approximately 70%. The results of that study were reported in a recent issue of Cereal Chemistry and are presented here because it is believed that operative millers, too, will be interested in the research.—THE EDITORS.

THE fact that nearly one half the total niacin of the wheat appears in the bran stream leads to the conclusion that the niacin of the wheat kernel must be largely contained in the branny layers. The site of the highest concentration of niacin in the wheat kernel is quite different from the site of the thiamine. The concentration of niacin in each of the four offal streams varies inversely as the concentration of thiamine. (See figures 1 and 2). That is, the bran stream is highest in niacin and lowest in thiamine, while just the reverse of those concentrations occurs in the germ. The shorts and feed middlings lie between in each case but the inverse variation holds with them also.

The exact site of the maximum thiamine concentration in the wheat kernel cannot be placed on the basis of the evidence found in this study. It can be said, however, that maximum concentration of thiamine does not occur in the bran layers, but appears to be in a lighter colored portion of the wheat because fractions containing a high concentration of thiamine may be only a light gray in color.

The highest concentration of thiamine was found in the germ and feed middlings fractions, while the bran was lowest of the millfeeds, even lower than the low grade flour. There was a large variation in the concentration of thiamine in the different fractions of the wheat. The thiamine in the germ was 46 times as concentrated as it was in the lowest flour stream (first middlings flour). The shorts contained more of the total thiamine in the wheat than any other single fraction, while approximately one fourth of the thiamine appeared in all the flour combined.

Riboflavin was much more evenly distributed throughout the kernel than was the thiamine. In the germ fraction, where it was the most concentrated, it was only 8.5 times the concentration in the lowest stream. Again the shorts contained more of the total riboflavin than any single fraction, but the total combined flours contained 40% of the riboflavin as compared to 25% of the thiamine.

The variation in niacin concentration in the different fractions was not quite so great as that of the thiamine but considerably more than that of the riboflavin. The bran stream contained the highest concentration, which was 26 times the lowest concentration, found in the second middlings flour. The outstanding feature is the fact that the niacin was largely concentrated in the bran. This fraction contained nearly one half the total niacin of the wheat.

The germ stream contained a concentration of niacin that was not much greater than that of the original whole wheat. The germ fraction contained a considerable portion of bran. A sample of pure germ, separated out by hand and entirely free of bran was assayed for niacin and was found to contain about the same amount of that vitamin as is found in low grade flour.

The combined flours contained a total of approximately one fifth of the niacin. The concentration of thiamine in the second baker's flour was approximately three times that in the first patent flour. The concentration of niacin increased at a similar rate, the second baker's flour having about two and one half times the concentration of niacin of the first patent flour. This similarity vanishes as it progresses toward the low grade flour, which had a concentration of thiamine equal to nearly 10 times that of the first patent flour, while the niacin con-

(Continued on page 12a)

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Chemistry for the Operative Miller

★ ★ By Dr. C. O. Swanson ★ ★
Kansas State College

THE amount of protein in wheat and flour is of primary importance to millers and bakers. The large number of protein determinations which are made in flour mill, grain and other laboratories requires an efficient method. The Kjeldahl method has become an accurate as well as a rapid laboratory determination. It is the standard test in practically all laboratories. Kjeldahl flasks, Kjeldahl apparatus are every-day terms of the mill chemist. A catalog of a leading laboratory apparatus firm lists 25 items under "Kjeldahl."

METHOD USED FOR 60 YEARS

This year, 1943, is the sixtieth anniversary of the publication of Kjeldahl's method for the determination of nitrogen in organic substances. Before this method was developed, the determination of nitrogen from which the protein content was calculated, was laborious and time-consuming. The present extensive use of the protein determination would have been impossible without this method. The older methods involved the heating in a combustion tube of the finely ground material either with copper oxide or soda-lime. In the former the nitrogen was liberated as a gas and measured as such. In the latter the nitrogen was obtained as ammonia, which could be absorbed and titrated as in the present Kjeldahl method. The basis of the Kjeldahl method is boiling the substance to be analyzed in concentrated sulfuric acid with the use of a catalyzer to hasten the reaction. This new method was at first called the wet method to distinguish it from the previous dry combustion methods.

THE CARLSBERG LABORATORY

Johan G. C. T. Kjeldahl did his epoch-making work of developing a rapid and accurate method for the determination of nitrogen in organic substances in the Carlsberg Laboratory at Copenhagen, Denmark. This laboratory was founded by J. C. Jacobsen, a brewer, who formed in 1876 the Carlsberg Foundation for the Promotion of Arts and Sciences. Kjeldahl and H. Jessen-Hansen started their work in this laboratory in 1876 and spent the rest of their lives in this institution in the service of science.

Most of Kjeldahl's researches were related to the fermentation industries. While studying the changes in the protein content of grain during germination and fermentation, the need of an accurate and rapid method of determining nitrogen became very pressing. Kjeldahl, therefore, started in 1881 to devote himself resolutely to the finding of the needed analytical weapon. The Kjeldahl method is his monument. The volume of his work was not large, but of high quality.

Carlsberg is one of the best known, among cereal chemists, of the European laboratories. A recent director is, or was, Professor S. P. L. Sörensen, who is well known for his work on proteins and enzymes. The late H. Jessen-Hansen, first an associate of Kjeldahl and then of Sörensen, was among the first to point out the importance of the hydrogen ion concentration in connection with baking and other problems of wheat and flour. Another worker in this laboratory was Emil Chris Hansen, the originator of pure yeast cultures.

—Illustration by courtesy International Milling Co.

It was the rare pleasure of the author to visit the Carlsberg Laboratory in the summer of 1930 and meet both Sörensen and H. Jessen-Hansen. On a trip through the laboratory, the latter took special pleasure in showing the original equipment used in the development of the Kjeldahl method. The first digestion flasks were only 100 cc, about one eighth of the present size. It was therefore necessary to make transfers to larger distillation flasks. It was several years before suitable glass had been developed so that both digestion and distillation could be made in the same flask.

AN EPOCH IN PROTEIN DETERMINATION

The publication of Kjeldahl's method may be called epoch making in protein determinations. Because the method was simple in performance and much more rapid than previous methods, many more determinations could be made daily. The method was subjected to a large amount of critical study by analytical chemists in many countries. Dozens of papers on this subject appeared annually, and the estimate may not be far off to say that the papers published in this connection number in the thousands. These investigations greatly increased the speed and efficiency as well as the accuracy of the method.

The Protein Determination

This article is the fifth in a series of articles under the general subject of cereal chemistry for the operative miller, written by Dr. C. O. Swanson, Department of Milling Industry, Kansas State College, Manhattan. Dr. Swanson, an internationally recognized authority in his field, possesses that ability, rare among scientists, of writing about scientific subjects in a way easily understood by the layman. Dr. Swanson is the holder of the Osborne Award for his contributions to the knowledge of cereal chemistry, and is one of the few honorary members of the Association of Operative Millers.

"The Search for Protein Quality Factors," the sixth article in the series on cereal chemistry for the operative miller, will appear in the January issue of this journal.

MOISTURE AND ASH COMPARISONS

The three most extensively used determinations in mill laboratories are protein, moisture (Milling Production, Aug. and Sept., 1943) and ash (Milling Production Nov., 1943). The moisture determination is the simplest in theory since it involves only the volatization of the absorbed or adsorbed water and weighing so as to estimate the loss. The ash determination is somewhat more complex since some over 98% of the organic matter in wheat and about 99.6% in flour must first be oxidized or destroyed and then the comparatively small amount of residue weighed. These two methods have been so well developed that they are both rapid and accurate and hence most useful.

CHEMICAL PROCESSES INVOLVED

The nitrogen determination is much more complex both in theory and practice than the moisture and ash tests. The first group of chemical reactions which take place when the organic substance is heated with concentrated sulfuric acid, separates the nitrogen from its organic combination and make it asssume the form of ammonia. Since the sulfuric acid is present in excess, ammonium sulfate forms. These chemical reactions involved are hastened by three factors: The disintegrating action of sulfuric acid on organic matter; the high temperature consequent from the high boiling point of the concentrated acid; and the presence of a catalyzer. A catalyzer is a substance which hastens or makes a chemical reaction more rapid.

Probably more research has been done in developing a suitable catalyzer than any other phase of the Kjeldahl method. The second group of chemical reactions liberate the ammonia from its combination in ammonium sulfate. The third step is to estimate the amount of ammonia by titration. The addition of a strong base, sodium hydroxide, liberates the ammonia which is volatile. This is then separated by boiling and absorbed in standard acid. By titrating with a standard base, the amount of ammonia is obtained and calculated as nitrogen. In practice the standard acid and standard base are made to be of such concentration that the milliileters used read directly in protein percentages.

EFFICIENCY OF THE METHOD

The rapidity with which the protein determination may be performed is all the more remarkable when the various steps in the process are considered. It is not unusual for one laboratory worker to make 100 or more determinations in a working day. This becomes all the more remarkable when the main steps after the sample has been ground for analysis are enumerated: weighing on an analytical balance and transferring to the digestion flask; adding measured amounts of the catalyzer and the sulfuric acid; heating until all the organic matter is destroyed; adding, after cooling, measured amounts of water and strong sodium hydroxide solution; distilling off the ammonia which is absorbed into measured amount of standard acid; adding the indicator and titrating with standard base. Considering that there are these 10 main steps, besides several accessory ones for every protein determination, the efficiency and the accuracy which have been developed mark this method as one of the most remarkable achievements in analytical chemistry.

THE FACTOR FOR PROTEIN CALCULATION

It is apparent from what has been said that in reality the Kjeldahl method

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determines the amount of ammonia which is obtained from the nitrogen in organic combination. Each molecule of ammonia is composed of 14 parts by weight of nitrogen and 3 parts by weight of hydrogen. Therefore the amount of nitrogen equivalent to a given amount of ammonia is readily calculated. The finding of a factor for the calculation of the amount of protein equivalent to a given amount of nitrogen is somewhat more involved.

THE FACTOR 6.25

The analysis of a large number of purified proteins from various sources showed that the average nitrogen content was 16%. This divided into 100 gives 6.25. Therefore if the percentage of nitrogen is multiplied by the factor 6.25, the result is the per cent of protein. Some proteins come much nearer having 16% nitrogen than others. It is manifest that for those which have 16% or near 16% nitrogen, the factor 6.25 will give the amount of protein. This is the usual factor for bran and other concentrated feeds.

THE FACTOR 5.7

The proteins in the wheat endosperm have been found to have considerably more than 16% nitrogen. Dr. T. B. Osborne and associates separated the nitrogenous substance of the wheat into four distinct proteins. The nitrogen percentages in these proteins were albumin 16.8, globulin 18.4, gliadin 16.66 and glutenin 17.49. Hoffman and Gortner found 17.54% nitrogen in specially purified gliadin, and 17.2% in glutenin. On the basis of these figures several factors would be possible, but the ones for gliadin and glutenin come nearest 5.7. These two proteins are present in the greatest abundance and are the ones which compose gluten. The factor 5.7 is supported by a number of other studies and is the factor used for determining protein in wheat and flour.

Soft Wheat Quality

(Continued from page 8a)

than is available now, the miller would be in a more flexible position to blend and thereby improve the uniformity of his product and provide flours more specifically adapted to some of the other applications of soft wheat flours such as doughnuts, pretzels, matzoths, pastry, biscuit mixes and other prepared flour specialties. The advantages to the farmer are not too difficult to appreciate.

Undoubtedly there are problems residing in this proposal involving a degree of educational or selling effort along with some associated with the marketing of the wheats. The advantages to be gained appear to provide some incentive toward action. I hope these views will be considered a sufficiently constructive suggestion to merit further study and thought and that ultimately there will result developments in the program for growing soft wheats that will redound to the advantage alike of farmer, miller and baker.

The author desires to acknowledge with much thanks the valuable co-operation extended by H. M. Simmons in the preparation of this material in the form of helpful counsel and the data furnished from the files of the Mid-West Laboratories, Columbus, Ohio.

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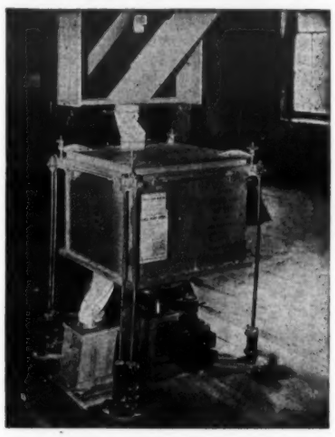

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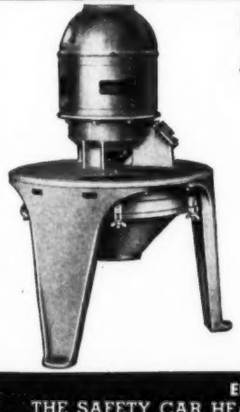

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B Vitamin Recovery

(Continued from page 9a)

centration of the low grade flour was only four times that of the first patent.

There was a sharp increase in the thiamine between 70 and 80% extractions, while the rate of increase in niacin remained more gradual until the extraction reached 85% or more, and a considerable percentage of the bran was appearing in the flour.

Analyses of the flour streams showed that first break flours were relatively low in thiamine but high in niacin. There was an average ratio of the percentage recovery of niacin to thiamine of 1.99 in the break flours and of 0.88 in the middlings flours. This characteristic of high ratio of niacin to thiamine in the break flours can be explained by the inclusion of some bran dust in these streams, since the bran would add considerable niacin but little thiamine.

Increase of the thiamine in flour by variation of the milling process is not necessarily accompanied by a like increase of the riboflavin and niacin. The riboflavin would not be materially increased because there is no single part of the wheat kernel which contains most of the riboflavin and which could be incorporated in the flour by a suitable milling procedure. The niacin cannot be materially increased, because it is contained largely in the outer bran layers of the kernel and these must be discarded if the flour is to be generally acceptable.

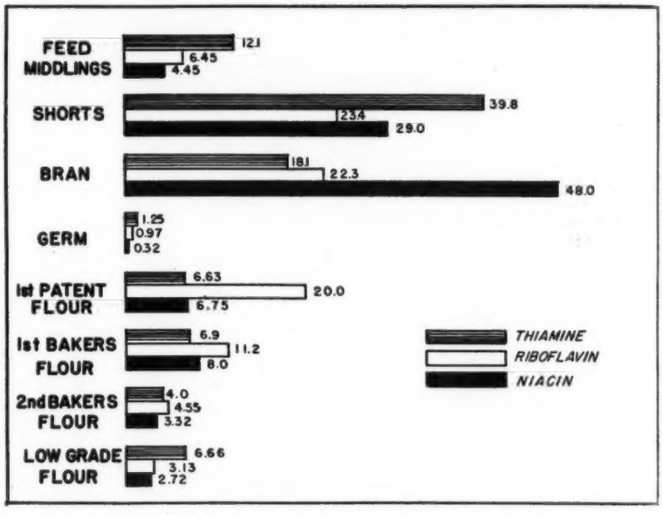

Fig. 1.—This bar chart shows the concentrations and percentage recoveries of the B vitamins—thiamine, riboflavin and niacin—in the millfeeds and flour composites composing 100% of the wheat. The figures to the right of each bar show the percentage distribution of each vitamin with respect to the total content of that vitamin in the whole wheat. Thus, while the germ contains a considerable concentration of the vitamins, it constitutes only 0.27% of the total wheat and the relative concentration is small.

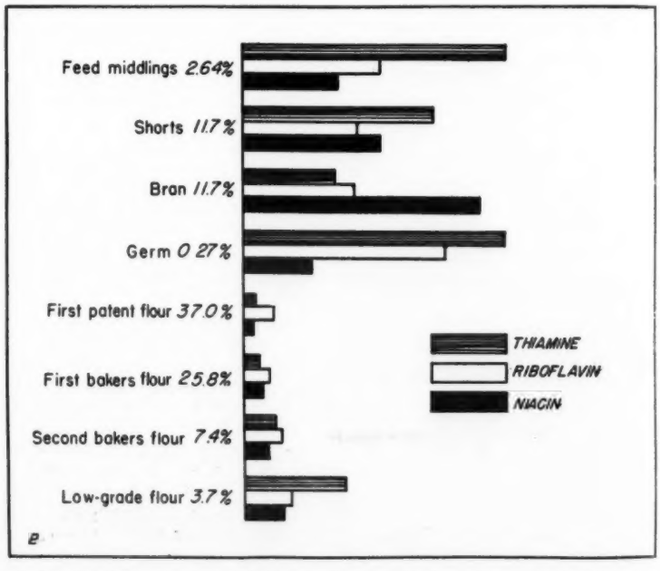

Fig. 2.—The concentrations of each of the B vitamins in each of the products of milling is shown in this bar chart. The figures to the right of each product shows the yield of that product. A comparison of this chart with figure 1 shows that while the germ, for instance, contains a relatively small percentage of the total vitamin content of the wheat, the concentration of the B vitamins in the germ alone, compared with an equal quantity of any of the other products, ranks at the top.

Milling 60 Years Ago

Operation of Reduction Rolls

By Louis H. Gibson

THE value of smooth rolls lies in the fact that they are purifiers at the same time that they are reduction machines. They are the only reduction machines which will lend aid to the purification of the stock at the same time that their tendency is to reduce it. They reduce the flour portion, the portion which should be reduced, and at the same time flatten the germ and do not seriously disturb or disintegrate the bran, the fiber or other impurities.

The purification of middlings is not possible without the use of these machines. There are the large portions of wheat with adhering portions of bran, the pieces of middlings which cannot be removed from the bran on account of there being little or no difference in the specific gravity of the two products; then there is the fiber and the germ. The flour particles are easily disintegrated, and the bran and the germ and fiber are either flattened, or remain undisturbed. There is a change made in the relative gravity of certain of the particles, and a change in the relative size of certain other particles.

In the first instance, there is a change of relative gravity by the breaking of the middlings into small particles, while the bran particles remain the same size, and consequently of greater gravity than the middlings themselves. Then again, the change as to size is more clearly illustrated by the breaking of the middlings and the flattening of the germ. Not only are the middlings made smaller by the breaking, but the germ is made larger by flattening. All separations by smooth rolls are made on account of the relative size of the pure or impure particles, and their use must be considered with reference to bringing about such a change. The idea that they are mere reduction machines and not purifiers limits their usefulness.

New process and gradual reduction milling came about as the development of purification ideas, and the development of new process and gradual reduction machines has been in the line of purification. The miller reduces to purify, and he purifies that he may reduce further. Now, if he may reduce and purify in the same operation, he is following out the true principles of his business. Such a thing is possible with the use of the smooth rolls; that is, when properly used.

When we say that a smooth roll will purify, we mean in fact that it will help, that it will lend aid as a purifier, and we speak of the ordinary sieve and suction machine in the same sense—as a link in a chain, as a part of a process. If the miller has in mind that his smooth rolls are purifiers and will treat them as such, he will do better work with them, will handle them altogether differently than if he were using them as reduction machines.

The miller who sets a pair of smooth rolls with a monkey wrench does not know that they are purifiers, neither does he who lets them run by friction with tight springs. The miller who allows the stock to come through the rolls in a flaky condition is not aware that the smooth rolls are purifiers. They perform this valuable office only when used carefully and intelligently. Absolute pressure on the stock does not reduce it, does not disintegrate it. It merely flattens it, hardens it.

"Pressure will disintegrate only to a certain extent, beyond which it produces increased solidity. It is therefore erroneous to suppose that middlings which are to be reduced by rolls should be subjected to great pressure. Neither is it true that pressure will hold the middlings against both rolls, as is necessary to effect the desired end."—[Dr. Sellnick.]

The same authority says in regard to the differential velocity of rolls: "The term differential velocity does not relate to the varying velocity of the revolution of the rolls, but is derived from the differential velocity of the circumference." By this is meant that two rolls of different size may run at different speeds and still not have a differential velocity. Say we take a roll which is 30″ in circumference, that is a little over 9″ in diameter, and run it against another roll which is 20″ in circumference, or a little over 6″ in diameter.

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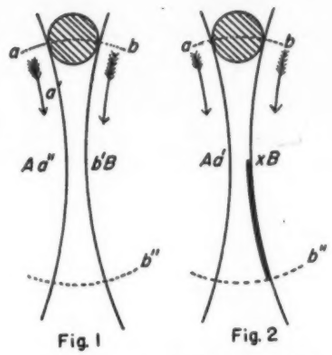
Now, the larger roll might run 300 r.p.m. and the smaller roll 450 r.p.m., still they would both travel the same number of feet as measured by the velocity of the circumference. Both would travel 9,000 inches per minute, which result is derived by multiplying the circumference by the number of revolutions per minute. Differential velocity means an absolute difference in the number of feet traveled by the circumferences of two rolls in the same length of time.

Shown here is a reproduction of a drawing made by Dr. Sellnick wherein he illustrates the theory of differential motion. *A* is the slow roll, and *B* is the fast roll; *b* will arrive at *b'* while *a* is at *a'* and *a* arrives at *x (a")* and *b* will be far beyond at *b"*. All points *b* move with greater velocity than points *a*. Fig. 2 represents the action of differential motion on an elastic substance. The body will be held at *a b*, and in its passage to *a" b"* (when *a* arrives at *x* and while *b* has arrived at *b")* it must stretch the distance *a" b"* and form a band-like strip *(a" b")* in length. In the case of brittle particles the substance would be broken into small pieces. If there be no differential there will be mere compression and incidental integration.



Dr. Sellnick tells how stock may be calendered, that is, polished, made smooth and hard like a sheet of paper. Calendered paper is produced by differential motion, one roll running slow and the other running fast as to its circumferential velocity while the paper is held under great pressure. This makes a smoothing action—a compressing, polishing action. This is what the miller does when he sets his rolls very close and makes a hard, flaky stock. He has calendered middlings or calendered tailings, or even calendered red dog. He has a sleek, glazed, compressed mass, and then he runs the stock through a mixing machine called a disintegrator, and pulverizes and tears to pieces the wafer-like stock in a way to derive no benefit from a smooth roll reduction. The impurities and all alike pass through the cloth and go into the flour.

Smooth rolls to be run properly should be set for a breaking or disintegrating action. They should not be allowed to compress the stock. The distance between one roller and the other should be such as to reduce the size of the brittle particles and merely flatten to a slight extent the germ particles, but not necessarily disturb or compress the bran particles. If the latter has adhering particles of middlings the action should be such as to break the flour particles because of the differential motion, but there should not be a pressure such as to flatten the middlings particles, or to break and disintegrate the bran particles.

After stock has been once compressed it can never again be reduced without disturbing and pulverizing the impurities, for which reason we may say that many smooth rolls are improperly handled.

Quite a difference may be made in the product of the tailings rolls by a change in the differential motion of such rolls. While the differential is excessive the flour will be more ragged, it will feel longer, and will contain a larger proportion of deleterious material than when the reductions of such stock are made with a smaller proportion of differential. The action of the differential motion of smooth rolls is to elongate the stock. This quality or tendency is limited by the liability of the stock to break. If a piece of dough were passed through the smooth rolls it would be flattened out, or elongated. The amount or proportion of elongation would be estimated by the differential motion of such rolls. The tendency of one roll to hold back and of the other to advance may be estimated by the excess of speed of one roll over another, and the elongating qualities on such a movement are exactly in proportion as the difference in speed. It is evident that the breaking action will predominate; that is, there will be more breaking than elongation in flour stock. There cannot be much elongation of middlings or brittle material of that kind. It will be broken. There is a limit to the elongating qualities of all material which goes on rolls, whether it be impurities or otherwise. Where the differential is excessive, it is apparent that a certain large proportion of the impurities would be broken and pulverized by the differential action of the rolls. As an illustration of possibilities, we will say that the motion of the rolls be integral; that is, that there be no difference in speed. There will be a compressing of the stock, and certain portions of it will be broken. There will be very little of the pulverizing action, either of legitimate flour or of impurities. The flour stock will be incidentally pulverized and broken, and the impurities, which are usually of a tougher character than the better material, will not be appreciably disturbed.

It is the tendency of all millers to want to pulverize or to make flour on most reductions, and especially the tailings and the lower grade rolls, and for this reason it may be expected that there will be a certain amount of differential at times in the reduction of this material. In fact, it can hardly be expected, nor is it desirable, that there should not be differential motion wherever smooth rolls are used. The disintegrating action of this movement is so gentle when the rolls are not set closely together that it cannot but be desirable, though the amount of such differential may be varied according to the quality of material to be handled. With belt rolls it is a very simple matter to vary the movement, and it will be easy for any miller to demonstrate to his own satisfaction the proper motion to select in the reduction of various kinds of stock. There is a disposition among many who handle these rolls to set them very close, which is entirely wrong, principally because it does not accomplish the desired end. There is a lurk-

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ing idea in the minds of many millers that the closer the rolls are set, the closer it is possible to set them and still keep the belt from slipping, the greater will be the amount of work done by such rolls. This is wrong.

There is a proper point, there is a point in the setting of rolls which will accomplish more work than any other, and it is not the point where the greatest amount of power is consumed or where the rolls are set the tightest. It is where the stock is broken and not flattened. This is the greatest evil, the place where the greatest wrong is done to the stock in milling—this same close setting of the smooth rolls. It is a very simple matter to judge when the rolls are doing their proper work. The stock, as it comes from them, feels as though it had been ground and not mashed. Not only will the amount of flour made by the proper setting of the rolls be greater, and not only will the proportion of pulverized impurities be less, but the amount of power will be greatly less. A miller says to himself: "I have only a few pairs of smooth rolls. I have not enough; therefore, I must set these rolls very tight, that I may hasten the operation of reduction." He does not do anything of the kind; he cakes and hardens the stock; he makes it impossible to reduce this stock on anything short of a millstone. Having been treated by one set of rolls, those following have very little effect in hastening the work of reduction.

It is hardly possible to completely reduce the product of the corrugated rolls with the smooth rolls. These rolls will go only so far, however carefully they may be handled, and no farther. There will be a certain amount of stock of most excellent character which is tailing over to the red dog, and if the red dog rolls be smooth iron, they will be tailing over the feed.

v v

EDITOR'S NOTE: **This article is a reprint of a chapter from Mr. Gibson's celebrated book, "Gradual Reduction Milling," published in 1885. The author was employed by a Minneapolis, Minn., flour mill and made a careful study of the operation of roller mills and was a frequent contributor of technical articles to THE NORTHWESTERN MILLER. Another installment of his book will appear in the next issue of this journal.**

Roll Corrugation

(Continued from page 4a)

From my observations, the proper operation has more to do with the success of any type corrugation than any other factor. By this I do not necessarily mean the adjustment of rolls, but also seeing that the equipment ahead of the breaks is doing its full duty. There is no corrugation, or can there be any type corrugation, that will throw clean middlings out of dirty wheat that has not been properly scoured and conditioned.

Neither is there a type of corrugation that will turn red durum or bin burned wheat into white flour. Have your rolls recorrugated by a reputable concern. Check your spiral on break rolls and see to it that the spiral suits the corrugation in question. The same will apply with reference to spirals on corrugated middlings rolls. Personally, I prefer 36 cuts per inch corrugation with ½" spiral per foot on A sizings stock, since we want to produce middlings here, and 38 cuts per inch with 1½" spiral per foot on first middlings rolls, since we want to reduce middlings at this point. But as we go farther down the line, we find that we can use less spiral on middlings rolls with better results, but in no case does it result in getting as low as ½" spiral on middlings rolls, particularly so on soft wheat. Differentials have their peculiar set-up with roll corrugation, but can be varied quite a little, but with little effect. Enough differential should be maintained to avoid flattening or squeezing middlings, but not enough to create too much pulverizing action.

Women in Flour Mills

(Continued from page 5a)

employer time or money—or headaches.

As for rest periods, I think it has been rather conclusively proven that pauses in a day's work greatly increase health and output. They are universal in English factories. After 18 years' investigation, authorities there have found that five or ten minutes of rest at the middle of a work period actually increases production by from 5 to 10%. Numerous plants in this country show similar results. The more tiring and monotonous the work, the greater the increase resulting from a rest. Try-out must determine the best rest pause, but 10 minutes in the middle of each four-hour work spell usually is adequate. Heavier or more trying tasks may require longer

It must be remembered, however, that rest periods are only part of a program or more frequent pauses.

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for health in industry. Alone they cannot offset fatigue from added overtime, excessive speed-up, constant standing, improper seats, noise, poor ventilation, and inadequate lighting. Attention must be given all these points if fullest output is to be gained.

Proper sanitary facilities have been a source of much worry to managers of plants that are employing women for the first time, or that have greatly expanded work forces due to war production. Priorities on plumbing equipment are hard to obtain, and space in the factory or mill is often at a premium. Yet a lack of decent facilities has caused women to quit their jobs. Every effort should be made to have at least a minimum of facilities.

Rest rooms are also important. Nothing will make a woman employee more dissatisfied with her job than the absence of some place to go and hold her head if she feels ill. Yet I have seen reports of investigations of plants where the so-called rest room was a locker space with an old wooden bench against a wall, and overrun with roaches, rats and flies. I am glad to know that similar investigations have shown that flour mills are, generally speaking, very clean and that animal life is today virtually extinct in such mills.

The greatest problem, it seems to me, and one of the most complicated in many respects, is that of wage rates for women workers. This is particularly true in flour mills where women receive lower entrance rates than men on many jobs. One flour mill official told the Women's Bureau that women "had proved" to be 80% as efficient as men. I don't know where he got that, but he stuck to it grimly. In another case we were told that women aren't worth as much as men because they need assistants for heavy work. The fact that a breakdown in the job may have resulted in a higher production rate never occurred to him.

The Women's Bureau would like to see every factory in this country have an entrance rate established for the job no matter whether men or women are hired for it. Where a learning period is necessary, women should not come in at any lower learning rate than an inexperienced man. Unequal rates of pay only make for trouble later on. Men and women are interchangeable now on too many jobs to make this practice tenable. On every side we are told that women are doing a wonderful job in industry. They should be rewarded with something more than a song and a movie and a pat on the back.

War production on the vast scale America knows today has brought with it many labor problems. We have had recruiting troubles, and absenteeism, and turnover. We have girls who want slacks and girls who won't wear slacks. We have mothers who must quit their jobs because they can't find a nursemaid for the children. We have housewives who take a day off every week because they can't find a laundry to take their sheets and tablecloths.

Some of these difficulties can't be solved by industry. The community has had to be mobilized to provide day care for children and transportation pools and "block mothers" for group buying. Government agencies are developing manpower controls. But it is up to the individual plant to see to it that the worker and the job are suited to each other. You can't order a woman to lift 75-pound weights and then wring your hands when she lands in the hospital permanently disabled. You can't ask a woman to use an unsanitary washroom and then shrug it off when she complains. You can't make a woman work 80 hours a week and then wail when she quits because, as she says, "she can't stand it."

Women workers aren't wonder girls and they aren't necessary evils. They have in back of them a long history of constructive contributions to the growth of American industry. When treated fairly and decently they will respond in like manner. When exploited they will prove a cancerous growth in the economic body.

In conclusion, I would like to remind you of what President Roosevelt said recently concerning the 17,000,000 women working together in our country for total victory:

"They're doing a grand job, all of them. Working under what are new conditions, for most of them, they are showing the skill and efficiency which make for high production.

» »

Editor's Note: The above article was adapted from an address made by Miss Anderson, a member of the staff of the Women's Bureau of the Department of Labor, before the annual convention of District 9, Association of Operative Millers.

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Belt Salvage

(Continued from page 3a)

vantage gained by overloading a belt for a short time is costly because it is paid for in shortening the life of the belt.

Accumulations of dirt tend to cause rapid wear in belts. Sometimes belt dressing may pile up on the pulley face. This accumulation should be removed since they may cause blisters and separation of the plies.

KEEP ALL BELTS CLEAN

Belts, too, should be cleaned. Any oil or grease may be removed from belts with soap and water or a mixture of three parts of carbon tetrachloride and two parts unleaded gasoline. The belts should be dressed again after they have been cleaned with this mixture.

Fig. 3. A printed tag, such as the one shown above, for each belt will supply all the information needed about the belts in your mill and will take much of the guesswork out of your belting problems.

Liquids of any kind falling on belts produce a highly undesirable condition. Most liquids to which belts may be exposed are harmful. Oil causes belts to swell, soften and fall to pieces. Direct heat, too, should be avoided, since this dries out the belt.

Accurate records will be a big help in the belt inspection program. The record of each belt may be kept on a stiff card containing spaces to enter the following information: machine, belting material, purchased from, length, width, ply, driving pulley diameter, r.p.m., driven pulley diameter, belt speed, date put on, date repaired, material cost, labor cost, date taken off, length of service, cost of belt per day.

Blank spaces to record the date of inspection, condition of the belt, and date of dressing may be printed on the back of the card.

» »

Editor's Note.—*The material presented in the accompanying article was adapted from a booklet published by the Cling Surface Co., Buffalo, N. Y., and is reproduced with its permission.*

——BREAD IS THE STAFF OF LIFE——

"The development of high milling in Budapest was brought about in a peculiar way. The mills of the section were run by current wheels; that is, the water wheels stood out in the current, and in that way transmitted the power to the mills. It so happened that at one time they had extremely low water, so low, indeed, that the mills could not be operated in the usual way. The wheat could not be reduced at a single reduction, and as an expedient, the experiment of reducing the wheat gradually by the millstones was undertaken. To the surprise of all who tried it, the flour was of most excellent quality, so good, indeed, as to lead to other experiments which developed high milling."—Louis Gibson.

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Millers and cereal chemists can use the granulation test described here in blending and milling wheats and flours. The test is suitable particularly in selecting wheat to be used for different purposes and measures the ease of "breaking up" or disintegration of the wheat berry by grinding—an important milling characteristic.

The test is simple and easily performed, but its very simplicity may easily become a pitfall to the operator who regards it as "foolproof." An operator may test 36 to 42 samples per day. The test may be used satisfactorily in conjunction with the protein, viscosity, fermentation time, milling and baking, and other tests in obtaining a more complete knowledge of the quality of the wheats involved.

The test, as developed by W. W. Worzella and G. H. Cutler, department of agronomy, Purdue University, was of prime importance in the selection of promising strains of wheat in the development of superior varieties for production in the soft winter wheat area. Hard winter wheats were crossed with soft winter wheats to combine the winter hardiness of the former with the desirable pastry flour quality of the latter. Therefore, a simple test for accurately estimating granulation was needed in selecting the strains that grind fine, smooth and nongranular flour.

In developing the test described here, each step in the procedure was studied and standardized. It has been used at the Purdue Agricultural Experiment Station for more than six years during which time approximately 8,000 tests have been made with satisfactory results. —THE EDITORS.

IT is a matter of common knowledge that flours milled from different classes and types of wheat differ in respect to granulation. Research has shown that granulation of wheat meal varies widely among different classes. It has also been shown that bread flours originate from wheat varieties that grind into a coarse meal, while pastry flours come from varieties that produce a fine meal.

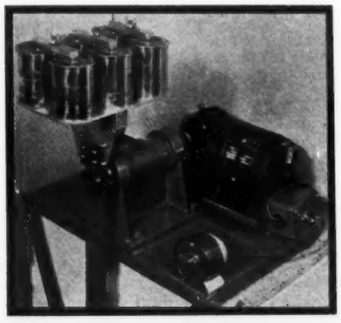


Fig. 1. Shown above is the "granulometer" as designed by Drs. Cutler and Worzella of Purdue University, originators of the granulation test for measuring soft wheat quality. The machine is an adaptation of the Ro-Tap machine and has the added advantage of sifting six samples at the same time. The sieves are locked in position on the platform.

Granulation of flour is regarded as an important component of wheat quality. It is therefore of considerable interest to millers, cereal chemists and bakers as it can be used as an aid in choosing and milling wheats and in flour blending.

EQUIPMENT NEEDED FOR THE TEST

The equipment necessary to make granulation tests is as follows:

"Labconco," "Hobart" or similar grinder that will grind the wheat into fine meal.

Granulometer and six nests of sieves as shown in Figs. 1 and 2.

Laboratory balance sensitive to 0.1 gram.

Spatula, small dishes, etc.

Ten grams of clean, sound wheat, containing about 9 to 10% moisture, are ground into a fine meal. (If a "Labconco" grinder is used, it should be set to point "XF." Immediately after grinding, a 2.5-gram sample is weighed and transferred to the larger sieve (60-mesh and 270-mesh sieves used) and then sifted for 1 hour in the granulometer. The material that passes through the 270-mesh sieve into the pan is weighed.

Fig. 2. This picture shows the sieves used in the granulometer. The meal is placed on top of the 70-mesh sieve and the final flour weighed constitutes the throughs of the lower (270-mesh) sieve.

The weight of this fraction is expressed as a percentage of the total weight of the meal (2.5 grams) and is designated as the particle-size index. A low index indicates a coarse meal and a higher index indicates a relatively finer meal.

PREPARING THE WHEAT SAMPLES

Dry, clean and sound wheat representative of the bulk of the sample from which it is taken is used. Dirty, shriveled or broken wheat should not be tested as those kinds of wheat do not respond satisfactorily.

Wheat containing from 9% to 10% moisture has been found most suitable for granulation studies. Meals obtained from samples of wheat that contain higher percentages of moisture often pack and form a layer of flour on part of the fine sieve, preventing complete separation of the fine meal and results in lower index values which interferes with the accuracy of the test. Samples possessing a higher moisture content grind into a finer meal than those of lower moisture content.

The originators of the test, Drs. Worzella and Cutler, state that the quantity of wheat that is ground in the "Labconco" grinder influences the degree of fineness of the resulting meal. Also, hard and soft wheats grind differently when different amounts of grain are ground. In soft wheats the larger the size of the sample ground, the finer the resulting meal will be. The reverse is true when grinding hard wheats, the men say. Since the amount of wheat ground affects the fineness of meal, it is necessary to grind samples of uniform size. A 10-gram sample is recommended.

The fineness of grinding of the meal greatly affects the actual differences in granulation between soft and hard wheats. Samples of wheat that were ground the finest were found to show the greatest differences between the soft and hard classes. Since there are obvious advantages in having as wide a spread as possible between different wheat types, the wheat is ground into a fine meal.

The meal should be tested immediately after grinding, since meal allowed to stand will undergo changes that modify the results. When ready to sample, the meal should be mixed thoroughly to insure an even distribution of the fine and coarse particles. Two and one half grams then are weighed and placed in the top of the nested sieves.

The granulometer, shown in Fig. 2, was developed by the Purdue scientists, using the principle of the Ro-Tap machine. That machine was found to be too slow since only one sample could be sifted at a time. The granulometer accommodates six samples.

Passage of wheat meal in the granulometer sieves is accomplished entirely by gravity. The sieve carriage rotates in a vertical plane as a result of the eccentricity of the driving shaft and is given a sudden jarring by a cam mounted on the outer end of the eccentric shaft. The drive motor is 1/20 h-p with a built-in reduction gear which gives to the main shaft a speed of 216 r.p.m. A time switch is mounted on the base of the shaker.

With a 2.5-gram sample, 60 minutes of sifting is required for a complete separation of the meal. While results obtained with only 30 minutes sifting were quite satisfactory, there is a tendency for some samples to form a layer of meal on part of the fine sieve. This can be prevented to some extent by placing a few kernels of wheat on the sieve. Samples showing a layer or crust of flour on the sieve must be resifted.

There are many advantages in designating numerically the relative fineness of a given wheat meal. In conducting granulation tests, the original meal is separated into the following fractions (a) bran and coarse meal that remain on top of the 60-mesh sieve, (b) meal and flour that are the throughs of the 60-mesh but fail to pass through the 270-mesh sieve, and (c) the throughs of the 270-mesh sieve. This fraction is weighed and is used in determining the index of meal fineness.

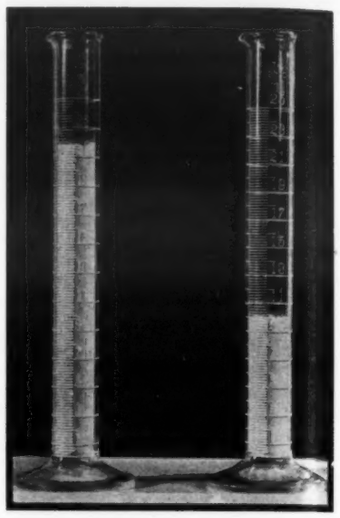


Fig. 3. Pictured above are the flours from two different varieties of soft winter wheat after the same quantities of wheat meal, ground to the same degree of fineness, were sifted in the granulometer. The flour on the left is from the Fairfield variety which yielded 22% through the 270-mesh sieve while the flour shown on the right was milled from Michikof, a variety that lacks the milling qualities possessed by Fairfield. Michikof inherited the hard wheat characteristics of Kharkof, one of its parents, and is an "inferior" soft wheat.

The granulation test measures only the degree of particle fineness of wheat meal made from different wheats and gives no information regarding other components of quality, such as yield, ash, protein quality, etc. Being an empirical method, the test should be followed as directed if satisfactory results are to be obtained.

—BREAD IS THE STAFF OF LIFE—

Scavenger Beetles

Carpet beetles, or dermestids, known to housekeepers as pests of household furnishings, sometimes vary their diet by feeding on dried products of vegetable origin, and some of them are occasionally found in establishments handling grain and cereal products. The black carpet beetle (*Attagenus piceus* [Oliv.]) is the most abundant and troublesome of these and the small black beetles are frequently to be seen in the spring at windows of mills and warehouses.

The larva, or worm, is reddish or golden brown, clothed with short, scalelike, appressed hairs and provided with a characteristic tuft of long hairs at the end of the body. The worms do not cause much actual damage to grain or its products but prefer to breed in cracks in the floor where accumulations of flour, meal and woolen lint collect.

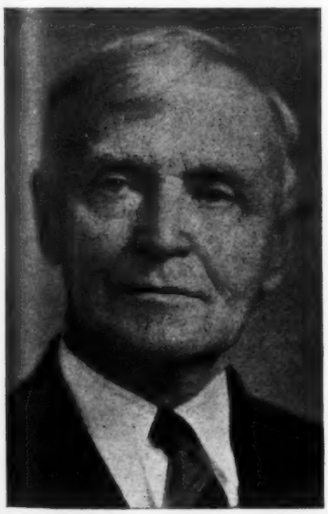
When bolting reels and redressing machines in flour mills are allowed to stand idle too long, damage is often caused to the silk cloths of these milling units by the feeding of these worms.—R. T. Cotton, senior entomologist, U. S. Department of Agriculture.

A New Reference Book for Cereal Chemists

CEREAL chemists have recognized the need of a book which would bring together in concise form the applications and interpretations of the many different physical tests that are applied to flour and flour dough as well as supply workers with an understanding of the fundamental principles involved in those tests. Determination of dough handling properties has attained increasing importance, principally in the products control laboratories, with the almost universal use of machines in mixing and molding bread doughs.

Such a book, "Physical Properties of Dough,"* by Dr. C. O. Swanson, was issued last month. The book was written, the author states in a foreword, "to help workers in this field obtain helpful ideas on the physical properties of dough as well as suggestions toward interpretations of the physical tests."

A knowledge of elementary chemistry and physics on the part of his readers has been assumed by Dr. Swanson. "One of the difficulties in preparing this book is to maintain a level of presentation that will be understandable to those who have had only the elementary courses in chemistry and physics, and at the same time will not be 'boring' to the advanced student," Dr. Swanson commented to one of his



Dr. C. O. Swanson

colleagues during the course of preparation of the manuscript.

The book is the result of an exhaustive study of the literature of cereal chemistry and from widely scattered sources Dr. Swanson has chosen approximately 200 research reports on different phases of work dealing with the physical properties of dough, and physical and colloid chemistry.

"What selections will best serve the purpose was a constant problem in preparing the book," Dr. Swanson states in the foreword. "Too many citations from the literature may confuse rather than help. More extended statements on fewer investigations were thought to be better. Citations and references will suggest more complete study of those aspects in which any reader may be particularly interested," he explains.

Dr. Swanson is one of the leading contemporary writers in the field of cereal chemistry and the basis of the volume in a series of articles that has appeared in this journal during the past two years under the general title adopted for the book.

The first five chapters are devoted to the fundamentals of physical and colloid chemistry since bread dough, because of the arrangement of the cell walls in relation to the air bubbles, is a colloid system.

The volume contains 10 chapters. There are 29 tables and 19 illustrations accompanying the text matter. It is 6x9 inches in size and contains 258 pages. The author has included a bibliography and an excellent index.

Some idea of the content of the volume can be gained from the titles of the chapters: I, Bread and Dough in Colloid Systems; II, Starch and Some of Its Properties; III, Wheat Proteins: Composition and Structures; IV, Surfaces and Particles; V, Adsorption on Surfaces and Adherence of Particles on Each Other; VI, Water Relationship in Dough; VII, The Viscous, Plastic and Elastic Properties of Dough; VIII, Physical Methods of Testing Quality;

*The Physical Properties of Dough, by C. O. Swanson. The Burgess Publishing Co., Minneapolis, Minn. $2.25.

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"Physical Properties of Dough" is Dr. Swanson's third book in the field of cereal science. The others are: "Wheat Flour and Diet," published in 1928, and "Wheat and Flour Quality," published in 1938. All of the books are included in the listing, "A Five Foot Shelf of Books for Flour Men," published in the Oct. 27, 1943, issue of THE NORTHWESTERN MILLER.

Dr. Swanson was born in Sweden. His family emigrated to the United States when he was but a few months old, settling on a farm in Illinois. The first 21 years of Dr. Swanson's life were devoted to hard work on the farm and during that period his only schooling was that afforded by a country school at which his attendance was restricted to the winter months between corn husking and spring planting.

When he became 21 years of age, Dr. Swanson left the farm and spent two years at Rice Collegiate Institute, the first in completing grade school subjects, and the second in introductory high school work. Then came a year at a private school in Chicago, followed by his enrollment at the Academy of Carleton College, Northfield, Minn., where he finished his high school education. He entered Carleton College in the fall of 1895, earning his way by sawing wood, doing janitor work and later by assisting in the chemical laboratory.

After being graduated in 1899, Dr. Swanson taught science and mathematics in the high schools of Jackson and Cannon Falls, Minn. He entered the Graduate College of the University of Minnesota in 1903 and it was there that he made his acquaintance with cereal chemistry under the guidance of the late Harry Snyder, a distinguished pioneer in the field. Mr. Swanson received the Master of Agriculture degree in 1905, majoring in chemistry.

After a year's employment at Purdue University as an agricultural chemist, Dr. Swanson accepted a similar position at the Kansas Agricultural Experiment Station, where he has served continuously with the exception of the academic year 1921-22. That year was spent at Cornell University where he received his Ph.D. in physical chemistry.

Upon his return from Cornell University, Dr. Swanson was appointed head of the Department of Milling Industry, a post he held from 1923 to 1939, when he relinquished the office to devote his full time to research and writing.

Dr. Swanson is a member of several scientific and honor societies and is one of the few honorary members of the Association of Operative Millers. In 1938 he received from the American Association of Cereal Chemists the Thomas Burr Osborne medal "for distinguished contribution in cereal chemistry." He was the fourth person to have received the award in the 14 years it had been established.

Laboratory research has not been Dr. Swanson's only field. He constantly has kept in mind the practical applications of science to agricultural welfare and to industrial practice and is a ready advisor of agronomists, milling technologists and others who seek the benefits of his wide experience.

When Dr. M. J. Blish introduced Dr. Swanson at the time of the Osborne Award presentation, he said:

"When the evidence is boiled down to

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the bare essentials, we have the following picture of Dr. Swanson: He is an able and popular teacher. He has an enormous capacity for work and he indulges it to the utmost. He has no patience or time for the student who loafs or who 'can't take it.' He has bulldog determination and perseverance. His methods for seeking information, and of giving it when solicited, are simple, straightforward and direct. The practices of the politician are utterly foreign to his nature. Apparently he is quite unconscious of the existence of such ordinary human weaknesses as jealousy, envy, and desire for popular acclaim. One may disagree with him over controversial issues, with complete assurance that personalities will never affect his arguments or thinking. Although strong in his likes and dislikes, he never permits them to influence his sense of fairness and tolerance. Dr. Swanson is definitely a 'rugged individualist.'"

Three years ago Carleton College conferred upon Dr. Swanson the honorary degree of doctor of science.

Cooling by Evaporation

By J. E. Anderson

EDITOR'S NOTE.—**This is the second in a series of articles by Mr. Anderson, dealing with factors that affect changes in atmospheric conditions in flour mills. His first article, "Atmospheric Factors in Flour Mills," appeared in the October issue of this journal.**

Mr. Anderson is well qualified to discuss atmospheric conditions in flour mills, having obtained an advanced degree at Kansas State College through a study of the subject. He held a fellowship grant of the Association of Operative Millers while engaged in the research.

COOLING by evaporation is an every-day phenomenon. Water may be cooled in a canvas-covered jug in hot, dry weather by evaporation of the water which seeps through the porous jug and spreads to the fibers of the canvas. Some "home-made" house-cooling devices consist of a layer of excelsior through which water drips and air is forced through the saturated excelsior which furnishes an extended surface for the water and air to come into contact.

A thermometer placed either in evaporating water or in the moist air above it will register a lower temperature than the temperature of the air a few feet away. Atmospheric temperatures near large bodies of water are always cooler than in the interior of large land masses or far away from large expanses of water.

THE NATURE OF HEAT

Heat is a form of energy. The molecules in all forms of matter are in a constant state of agitation or vibration. Additional energy increases the rate of vibration and results in a rise in temperature. The amplitude of the vibration of molecules in liquids and solids is smaller because they are held together by the force of cohesion. In gases, the ampliture of vibration is large because the force of cohesion is non-operative since the molecules are too far apart.

EXCHANGES OF ENERGY

Changing of ice to liquid water and of liquid water to water vapor utilizes energy. The reverse of these processes liberates energy. In ice, the water molecules are held in fixed positions relative to each other. Energy is required to separate them so that they can move freely among each other. In a gas or vapor the molecules move about with great velocity in straight paths until they strike each other or the wall of the container, producing air or gas pressure.

Energy, in the form of heat, is liberated when the reverse processes take place which change vapor to liquid water by condensation and water to ice by freezing. The molecules required this energy to remain in the vapor or liquid state.

UNITS OF HEAT MEASUREMENT

Units used in measuring the amount of heat are the British thermal unit (B.t.u.) and the calorie (C.). One B.t.u. is the amount of heat required to increase the temperature of one pound of water one degree Fahrenheit. The metric system unit, the calorie, is the amount of heat required to increase the temperature of one kilogram of water one degree centigrade. One B.t.u. is equal to about one fourth calorie, or one calorie about equals four B.t.u.

LATENT HEAT OF FUSION OF ICE

When heat is applied to ice, the ice melts but it or the water formed does not increase in temperature until all of the ice is melted, when the water temperature then begins to rise. To melt one pound of ice, 143.3 B.t.u. are required. This amount of heat is known as the "latent heat of fusion" of ice. It is called "latent" because the heat seems to disappear without being made evident by a rise of temperature of the ice and water mixture. The amount of heat needed to melt one pound of ice is equal to the amount used in raising the temperature of one pound of water from 32° F. (the melting point) to 175° F. In warming the water, no tearing apart of molecules occurs as in melting ice; only an increase in molecular vibration is produced.

VAPOR PRESSURE

The temperature of the water will gradually increase if the addition of heat is continued. Evaporation takes place, slowly at first, on the water surface and then increases as the temperature rises due to the more rapid agitation of the water molecules. This escape of water molecules from the surface gives rise to vapor pressure because it increases the number of units of water molecules per unit of space. At first this pressure is less than that of the atmosphere, but with continued escape of the water molecules, the pressure will finally become equal to that of the atmosphere. This is known as the boiling point.

At the boiling point, liquid water changes to vapor in the interior of the liquid so rapidly that bubbles are formed. These bubbles of vapor or steam rise to the surface and in breaking produce the familiar manifestation of boiling.

LATENT HEAT OF EVAPORATION

Further application of heat to the water after the boiling point is reached does not cause a rise in temperature as long as water is being vaporized. This added energy is used in tearing the water molecules apart, or overcoming the force of cohesion to such an extent that molecules can exist in the gas or vapor form. The heat utilized in evaporating the water is known as the latent heat of evaporation or vaporization. In changing liquid water to steam or water vapor 970.3 B.t.u. are required. A comparison of the latent heat of fusion of ice and the latent heat of evaporation of water shows that six and three fourths times as much heat is required to change water into steam as is required in changing ice to water. Because of this fact that evaporation is a great consumer of energy, its efficiency in lowering temperature is equally high.

NATURE OF LATENT HEAT

Heat utilized in melting ice or in vaporizing water apparently disappears and hence the name "latent heat." The heat added after the ice is melted is not latent because it is apparent in the increased temperature of the water. Latent heat exists in the energy needed to keep the water molecules in a liquid form or in a state of vapor or gas. Cooling by evaporation is then due to the utilization of heat or energy in changing the condition or state of water molecules from liquid to vapor or gaseous state. The energy is not lost or destroyed but exists in the increased agitation of the water molecules in the gaseous or vapor state.

HEAT EXCHANGE BY RADIATION

Heat may be transferred from one place or object to another by three methods—radiation, conduction or convection. The most common example of radiation is the heat transfer from the sun to the earth. This form of heat is readily experienced on a sunny day when clouds occasionally shut out the sun's rays. Exposure to the direct rays of the sun creates a feeling of warmth and the passing of the shadow of the clouds produces a cooling sensation. The sensation of warmth is produced by the absorption of radiant heat and the coolness felt is due to the temporary "shutting off" of the heat.

HEAT EXCHANGE BY CONDUCTION

Transfer of heat by conduction is a common phenomenon in solids. A metal rod held by one end will soon feel warm if the other end is held in a flame. The agitation of the molecules of the heated end of the rod is violently increased by the heat energy of the flame. The energy is then transferred along the rod from molecule to molecule and soon the end of the rod held in the hand will feel warm and then hot.

In conduction, as well as in radiation, there is no transfer of the molecules. When the energy of radiation impinges on the molecules in a gas, liquid or solid, then their rate of vibration is increased and hence they increase in temperature. In conduction, the vibrations are transferred from molecule to molecule. Radiation and conduction may act in conjunction when one part of a solid becomes exposed to radiant heat, the heat thus absorbed may then be transferred to other parts of the solid by conduction.

In convection there is transfer of molecules and the heat is carried by the molecules when moved from place to place. Convection can easily be observed when water is heated in a transparent glass beaker. The water becomes hot first near the bottom where the heat is applied. This warmer water then will rise toward the top and the cooler water descend. A continuation of this process will soon cause the water to boil. House heating by hot air furnaces is an application of heating by convection. The air warmed in the furnace passes into the rooms of the house and the cooler air returns to the furnace to be heated. The greatest transfer of heat by convection is by winds.

PRINCIPLE OF COOLING BY EVAPORATION

Cooling by evaporation of water results from utilizing energy in changing the water from the liquid state to the vapor state. This phenomenon occurs at all temperatures but the rate increases with an increase in the temperature. The water molecules on the surface of a liquid differ among each other in their amplitude of vibration or kinetic energy. Some vibrate faster than others. The molecules in the air are in a state of exceedingly rapid vibration. When these air molecules strike the water molecules on the surface, the rate of vibration of the water molecules is increased. A greater amplitude of vibration is thus produced in some of the water molecules at the surface of a liquid. The impacts of the air molecules results in the faster moving water molecules flying off the surface and leaving the slower moving ones. These slower moving molecules have a slower rate of vibration and hence are cooler. This is one of the fundamental principles involved in cooling by evaporation.

The continued bombardment by the air molecules will cause a further increase in vibration in the other water molecules on the surface, causing them to fly off eventually. The energy which exists in the air molecules is transferred by convection to the water molecules.

The utilization of energy in changing the slower rate of vibration which the water molecules have in the liquid form to the rapid rate which exists in a vapor is the medium of cooling by evaporation. The heat energy is used in overcoming the force of cohesion which holds the molecules in the liquid state and gives them the freedom which exists in the vapor state.

THE PROCESS OF COOLING

Cooling by evaporation then is a process of transferring energy or changing energy to a latent state. Transfer by convection takes place in moving the air molecules near enough to the molecules on the water surface so that bombardment can take place. For this reason air movements increase the rate of evaporation. Further transfer takes place by conduction when the rapidly vibrating air molecules come in contact with the slower vibrating water molecules. This increases their rate of vibration to such an extent that they have enough energy to escape from the force of cohesion which holds them in the liquid state. Overcoming this force utilizes energy and hence causes a cooling or lowering of temperature.

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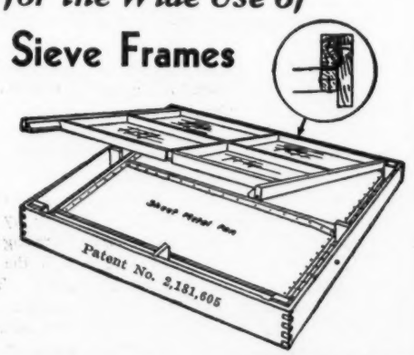

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Draft Deferment

There Is No Rigid System and Local Boards Have Power to Decide Induction Questions

THE War Manpower Commission has recently made some changes in rules for inducting men under the selective service system, although the basis for all occupational deferment has not been altered. In view of the fact that dependency is no longer reason for draft deferment, the occupational status rules are more important than ever.

A point sometimes overlooked by employers is that there is no rigid system or classification basis for deferment. It is not enough that an industry be classed as essential (there are more essential than nonessential industries listed) but it also must be shown that the employee himself is doing important work for which no replacement can be obtained. The three standards of judgment in classifying a "necessary man" are that (1) he is engaged in war production or in support of the war effort; (2) his removal would cause serious loss of effectiveness therein; (3) he cannot be replaced.

Local boards have the power within their respective jurisdictions to determine, subject to the right of appeal, all questions of deferment from service of all individuals within their jurisdiction. The decision in each case, subject to the right of appeal, is made by the registrant's local board. The lists of "critical occupations," "essential activities" and "nondeferable occupations and activities" are issued by the War Manpower Commission to guide the local boards in making their decisions and are not mandatory.

The inclusion of a registrant's employment on the critical or essential list or its omission from that list does not conclusively determine his occupational status. The question to be determined by the local board is whether or not the registrant is needed in his current occupation in support of the war effort.

REPLACEABILITY

In connection with consideration of occupational deferments, the boards have been requested to consider the "replaceability" as well as skill of men in essential industry.

In judging replaceability, boards are instructed to consider (a) the shortage of the registrant's skill in the total labor force; (b) the shortage of workers to replace the man even though he is an unskilled worker; (c) the shortage in the place of employment even when no national shortage exists. Thus, the boards are to study the actual immediate effect upon war production and essential supporting activity of workers who are subject to induction.

The omission of certain occupations (for example, truck drivers) from the List and Index of Essential Activities does not necessarily mean that such occupations may not be deemed essential in an essential industry.

A skilled workman is usually more difficult to replace than an unskilled one, but according to WMC an unskilled workman may be deferred if his induction would vitally interfere with war production. The controlling factor in the case of deferring unskilled workers is the immediate need. Local boards are instructed to take into account not only the national shortage in a registrant's skill but also available replacement for the unskilled worker and the current local shortage of skilled or unskilled workers in war supporting activities.

In areas where it is not possible to replace skilled or unskilled workers about to be inducted and where such induction would interfere with the war effort, the employer should place such facts before the local board with regard to the irreplaceability of the registrant involved. Local boards have been instructed to take into account local shortages of such workers in war supporting activities. In each case the local board will then make a decision as to whether or not the worker involved would be eligible for occupational deferment.

DEFERMENT LENGTH

Local boards only have the authority to set the period for deferment and the national selective service system cannot regulate the length of such periods. An occupational deferment must be determined on its individual merit and the length of each deferment period decided by the local board.

Occupational deferments will be extended until the necessary man can be replaced by someone not qualified for military service. Usually men are deferred for periods not longer than six months at one time. These deferments can be continued for additional periods so long as in the judgment of local boards the registrant is needed in the war effort and is irreplaceable.

Employers should remember that boards in different areas may be up against different problems. If a board has exhausted all men on its lists classified as unessential it must continue to fill quotas from men who might be classed as essential. As a result a case may appear where an essential man in one district may be deferred and in an adjoining district an equally essential man would be drafted. This is happening constantly even to workers in munitions plants.

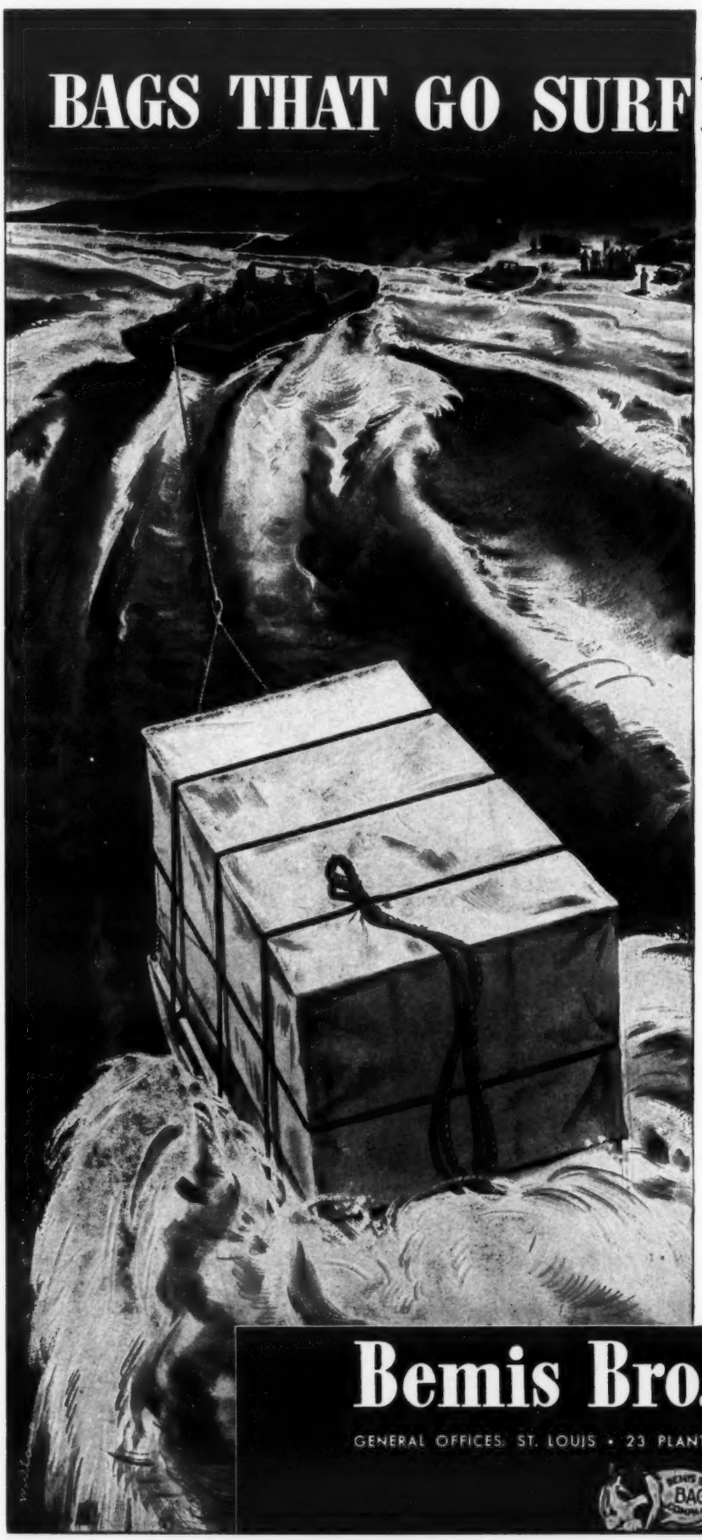
All employers who have not already done so should file the 42-B forms with local draft boards on all employees, as well as 42-A forms with supplementary detailed information on those whom they hope to have deferred on occupational grounds.

—BREAD IS THE STAFF OF LIFE—

MANUAL TEACHES TRAINING FOR INDUSTRIAL FIREMEN

A 184-page volume, entitled "Industrial Fire Brigades Training Manual," recently published by the National Fire Protection Association, is designed to meet three widespread demands: first, as a training manual for employees assigned to carry out fire fighting duties under direction of the chief of the private brigade; second, as a reference book in those plants where a fire brigade is already organized, but where the experience of a large group of experts can be profitably utilized; and third, in those plants which need the essentials but not the details of large plant fire protection organization. Page size, 8½x11 inches. Single copies $1.50 postpaid from the National Fire Protection Association, 60 Batterymarch Street, Boston, Mass.

BAGS THAT GO SURFBOARDING



★ Allied invasion troops, from Norway to New Guinea, will have dry munitions and supplies because of a new packaging method...a special wartime version of the Waterproof Bag that has served peacetime commerce efficiently for many years.

Developed in cooperation with the Navy, this new package actually is two waterproof bags. Manufacturers of materiel place one bag on a sled-like pallet and fill it. The other slips over the load and the entire unit is bound to the pallet with steel strapping.

Packed in this way, supplies may be shipped to any part of the globe, and, without further protection, landed from spray-washed barges or towed, like surfboards, through rolling breakers to the beach. On land, they may be stored in the open without damage by rains.

It is fortunate that, when the Navy called on us for assistance in solving this transportation problem, we had the benefit of more than eighty-five years of packaging experience.

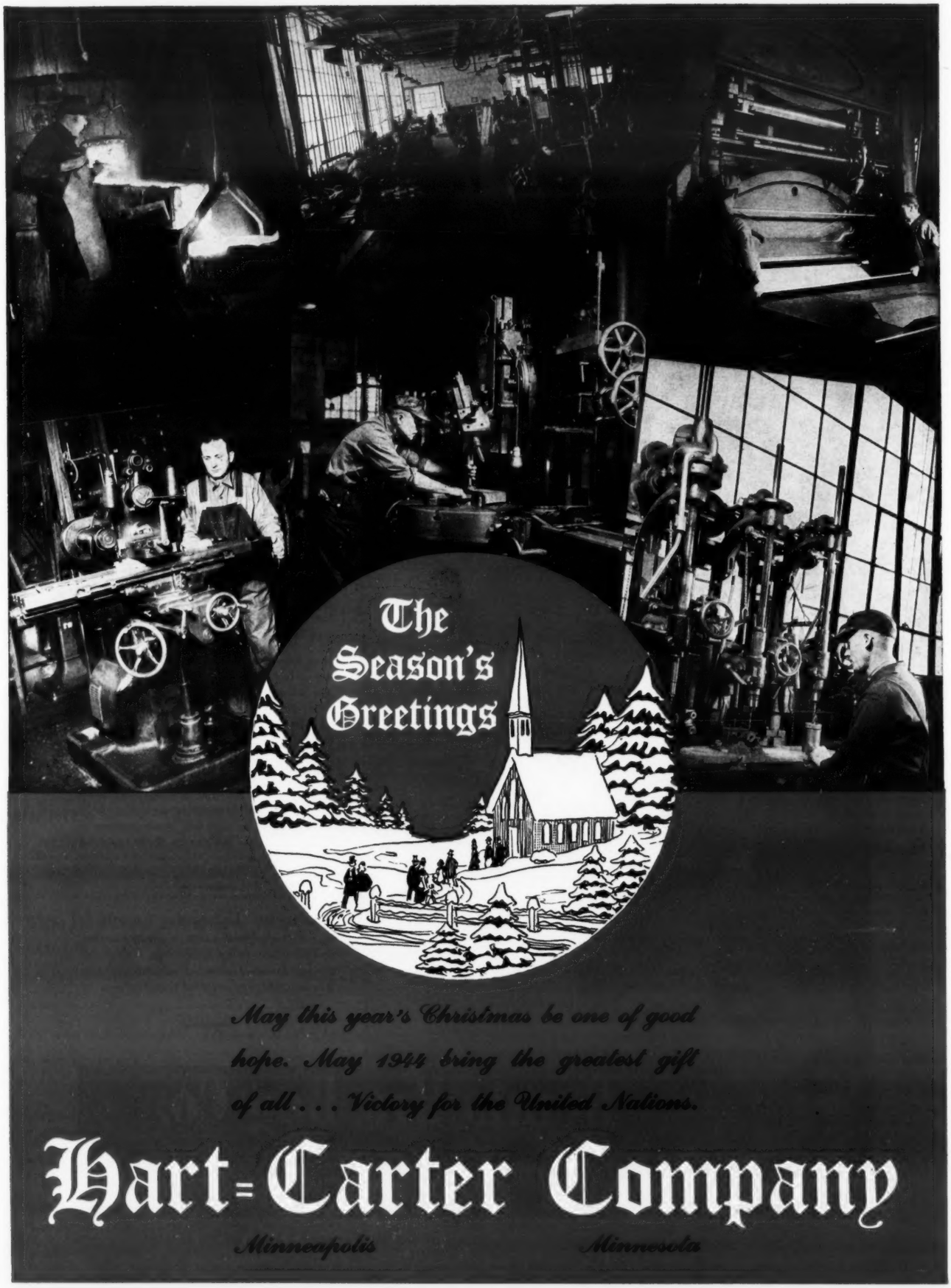
Much of this experience, of course, has been in association with the milling industry, which is now sharing in a major phase of the war effort—that of helping to keep our fighters and workers well fed. It is gratifying to us that we can continue to serve American millers in their essential wartime work.

In tests of Bemis-made pallet covers, materiel was unloaded from a ship in heavy weather, hauled ashore in an open barge, then towed through breakers behind an amphibious tank. The materiel they protected remained dry.

Bemis Bro. Bag Co.

GENERAL OFFICES: ST. LOUIS • 23 PLANTS THROUGHOUT THE COUNTRY

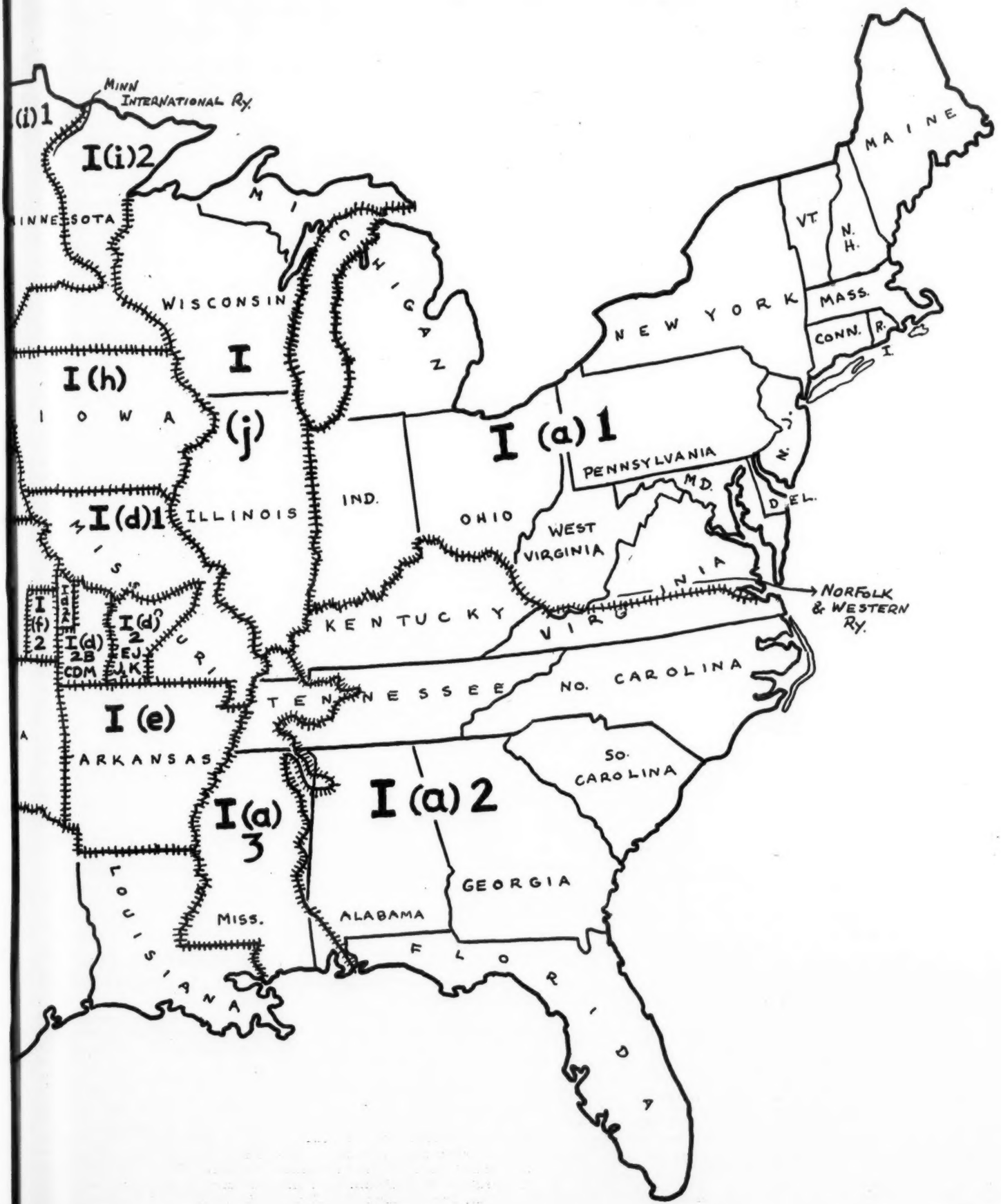
BUY MORE WAR BONDS



May this year's Christmas be one of good hope. May 1944 bring the greatest gift of all . . . Victory for the United Nations.

Hart-Carter Company

Minneapolis Minnesota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NORFOLK & WESTERN RY.
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Canadian Millfeed Production Nears Maximum Capacity Point

WINNIPEG, MAN.—Production of millfeeds in Canada is running close to the maximum output of the Canadian flour milling industry, according to the Dominion Bureau of Statistics. Production in the crop year 1942-43 totaled 788,229 tons, of which almost 95% was consumed in Canada. It is expected there will be a moderate increase in production during the current crop year, but demand is likely to continue to exceed supply.

In the high protein field the situation is the most serious, the bureau states. Many ingredients of the balanced ration are in very short supply and there is little hope of more than minor improvement taking place in the course of the next year. The United States is faced with a similar situation and therefore not in a position to give much assistance, although some imports are being obtained from that source.

Supplies of oil cake and meal are likely to be somewhat larger during 1943-44 due to the production of sunflower and rape seed in western Canada this year and some increase in the crushing capacity of Canadian mills. Flaxseed supplies are ample, but soybean is likely to be in short supply. Animal proteins may be a little more plentiful than in the past year but still far short of requirements, the bureau predicts.

The minimum requirement of high protein feeds, stretching supplies fairly well through the various production programs of Canada's wartime agriculture, is in the neighborhood of 650,000 tons, but present prospects are that less than half this amount will be available during the next year.

During the first 15 weeks of the current crop year almost 86,000,000 bus of Canada's five principal grain crops have been shipped to the United States, the Dominion Bureau of Statistics reports. This total includes more than 50,000,000 bus of wheat, a large proportion of which is intended for re-export, but the total of oats, barley, rye and flaxseed exceeds 35,000,000 bus, practically all of which is for use in the United States.

The bulk of the movement has been made by vessel from Fort William and Port Arthur, but fairly substantial shipments have also gone from points in western Canada and from terminal elevators located east of the lakehead. There has been a moderate movement of wheat from the Pacific Coast.

SEASON CLOSING BRINGS HEAVY CANADIAN LOADINGS

WINNIPEG, MAN.—Wheat and coarse grains in the last nine days of November poured from the spouts of terminal elevators at the Canadian lakehead in larger volume than for many months. More than 32,000,000 bus of all grains went into the holds of 140 boats and more than 24,000,000 bus of the bulk total was wheat.

Seventy-two of the vessels carried winter storage cargoes to tie up at Canadian and United States ports. Most of these were for Canadian and United States mills.

Despite the fact that lake insurance rates increased at midnight on Nov. 30, demand for wheat to fill boat space continued keen during the first week of December, but complete official figures as to the number of boats cleared and the quantity of grain loaded are not yet available.

——BREAD IS THE STAFF OF LIFE——

SELLING IN SMALL PACKAGES

TORONTO, ONT.—In view of the scarcity of Ontario winter wheat flour, due to the difficulty of obtaining wheat for grinding, many Ontario mills are endeavoring to make their supplies go as fas as possible by selling only the smaller packages. They are also trying to keep sales to the bakery trade evenly distributed so as to prevent one bakery from accumulating stocks at the expense of another.

DRIED MILK INCORPORATED IN BRITISH BREAD FLOUR

LONDON, ENG.—It was revealed, in answer to a question asked recently in Parliament, that British millers are now required to incorporate ¾% of dried milk in the flour they produce.

The parliamentary secretary of the Ministry of Food, Mr. Mabane, said that fortification of flour with dried milk was introduced as an important means of insuring that valuable nutrients reached persons needing them most. The dried milk is charged to controlled millers at substantially the same price as that paid by wholesale distributors. The effect of the inclusion of dried milk in flour on the basis of present quantities is to increase the amount of the flour subsidy by approximately $4,000,000 per annum.

At a recent press conference of the Ministry of Food it was asked if the variations in the texture of the national loaf were not due to the method of baking. The questioner said he believed the loaf at present consisted of wheat as a basis, with the addition of oat, barley and potato flours. What he wished to know was whether this was a standard flour, whether all bakers were bound to take it as it was, or whether they vary their particular flour, say, by leaving out one of the ingredients.

The official of the ministry replied that he could not supply full details of the present composition of the flour being used. Rye was already going into the loaf in very small quantities. What the baker had to do was to make the most of the flour available. It was impossible to get absolute uniformity throughout the country. The ministry had been doing its best to instruct and assist bakers to produce as uniform and as palatable a loaf as they could. Bakers did not buy the ingredients and make the flour themselves. The challenge to the milling and the baking industries was to make a first-class loaf out of the present flour, which, of course, contained a very much larger quantity of home-grown wheat than ever before.

——BREAD IS THE STAFF OF LIFE——

INCREASE IN CANADA'S WHEAT ACREAGE EXPECTED

WINNIPEG, MAN.—The dominion-provincial conference on 1944 production plans for Canada is now under way in Ottawa. There are no indications what proposals will be brought forward, with the exception of wheat. It is, however, fully expected that Canada's wheat acreage will be boosted. Some authorities even predict that all restrictions regarding the production of this bread grain will be lifted.

——BREAD IS THE STAFF OF LIFE——

DRAWBACK PRICES ESTABLISHED

WINNIPEG, MAN.—For November, 1943, and for each month thereafter, until further notice, the drawback to be paid on domestic deliveries of flour and wheat products will be based on an average price of $1.25 bu for No. 1 northern and $1.30 for No. 1 C. W. amber durum, in store Fort William-Port Arthur. The approximate price being established at 77⅞c bu, the drawback on No. 1 northern will be 47⅝c bu and on No. 1 C. W. amber durum 52⅝c.

——BREAD IS THE STAFF OF LIFE——

AUSTRALIAN MILLS PLAN PRE-WAR OUTPUT VOLUME

LONDON, ENG.—The High Commissioner of Australia (London), is understood to have stated that Australia is planning a milling program equal to pre-war figures, when Australia was the largest flour exporter in the world, to fulfill large export orders. As already reported, the British government recently has placed some large orders for flour with the Australian government.

——BREAD IS THE STAFF OF LIFE——

WHEAT AND LIVESTOCK POOLS JOIN

WINNIPEG, MAN.—A basis of agreement was reached in Regina, Sask., recently between the Saskatchewan Livestock Pool and the Saskatchewan Wheat Pool for the amalgamation of the two organizations.

——BREAD IS THE STAFF OF LIFE——

INDUSTRIAL CROP USE STUDY

WINNIPEG, MAN.—Extension of facilities in the prairie provinces for a more intensive study of industrial use of agricultural crops is announced by Hon. J. A. MacKinnon, minister of trade and commerce.

MORE CANADIAN WHEAT FOR PACIFIC COAST FEEDING

VANCOUVER, B. C.—Further sales of Canadian wheat for feeding purposes in Pacific Coast states were made by local grain men to the Commodity Credit Corp. during the past week, and this marked a renewal of buying which took place a month ago and aggregated some 10,000,000 bus. The business just done totaled around 500,000 bus, but no details are available regarding shipping dates. The grain will go from here to California ports by freighters assigned to the CCC by the Wartime Shipping Administration, while any shipments for the Puget Sound area will go by barge.

Following very active buying a month ago, the CCC orders dropped off completely, due chiefly to the fact that the Canadian Wheat Board, which now controls all grain in the Dominion, was not making any offers. With the movement of more wheat to coast elevators from the prairies some improvement is now noted in the offerings.

November witnessed the largest export movement from this port in several years, 1,265,688 bus being cleared. The major portion was for CCC account for California and Seattle.

Grain men here take somewhat conflicting views regarding future CCC orders. Currently offerings from this coast are below those in eastern Canada despite the fact that the movement from here to U. S. Pacific Coast states carries a domestic rate considerably above the export quotations. However, as wheat prices at Fort William are advanced, similar boosts are made by the Wheat Board here.

Recently the f.o.b. Vancouver price for No. 2 and No. 3 northern wheat, in which the CCC is mainly interested, has gone up to a point where it is almost on a par with the prices asked by American growers in the Pacific Northwest. If the Vancouver price reaches a comparable level it is only natural that the CCC, which is interested only in getting wheat for feed rather than for any special nutritive quality, would make its purchases from U. S. farmers.

——BREAD IS THE STAFF OF LIFE——

GRAIN MOVEMENT PROBLEMS ARE EXAMINED AT OTTAWA

WINNIPEG, MAN.—All phases of the transportation problem in relation to the movement of grain were thoroughly examined at a meeting held here last week under the chairmanship of T. C. Lockwood, Canadian transport controller. Particular attention was given to the volume of grain stocks which will be required at the lakehead before the opening of navigation on the Great Lakes next spring. Methods were worked out for continuing the necessary all-rail movement of feed grains to eastern Canada throughout the winter on the basis of estimates of winter requirements submitted by the feeds administrator.

I guess I'm getting to be a sissy.

•

On the radio the other night, I heard those oldies, OH SUZANNA and SWANEE RIVER.

•

I shed a furtive tear.

It made me think of the palmy days when folks roundabout the mill brought their wheat right to the mill in big wagons.

My, my. Seems just like yesterday.

•

Today our neighbors still haul to the mill, only they come in sleek trucks. At the same time, the plant expansion has made our appetite enormous. We reach far out to get enough of the kind of grain we require.

•

Sounds like we'd gone Big Business —but that's not the case! We're just the same folks we've always been— just a mite busier.

•

And it's because we proudly maintain that *unvarying* QUALITY that you'll find us in the shops of so many particular bakers, I guess.

Yours B. J.

DIAMOND JO • CHIEF JO JOSIE

EUROPE'S WHEAT CROP THE BEST SINCE 1939

Acreage Expansion Largely Responsible for Harvest Estimated at 1,540,000,000 Bus

WASHINGTON, D. C.—The 1943 wheat crop in Europe, excluding the Soviet Union, is estimated at about 1,540,000,000 bus, according to estimates made in the Office of Foreign Agricultural Relations. This would indicate the best harvest since 1939 and is about 10% larger than the poor outturn in 1942, though still below the 1933-37 average of about 1,580,000,000 bus.

Weather conditions were much more favorable than during the preceding season. Fall seeding was completed under good conditions. The winter was mild in almost all areas with very little winter kill reported, and the early spring favored growth.

Acreage expansion was largely responsible for the increased returns, though yields were better than in 1942, especially in the Balkans, France, Italy and most of Central Europe.

In general the best yields were indicated in the Danube Basin countries—Hungary, Yugoslavia, Roumania and Bulgaria—particularly in the latter two, and in the British Isles where a record crop is reported. Production in France and Italy, the two largest producers excluding the Soviet Union, is indicated to be above last year, though the crop in France is still below the prewar average. The current outturn in Denmark is much more favorable than in 1942 when the crop was reported to be almost a complete failure. It is, however, still considerably below the average for that country. Wheat in Central Europe is below average but is thought to be the best of the wartime crops. In Spain and Portugal production is estimated to be somewhat below last year's yield.

—BREAD IS THE STAFF OF LIFE—

REORGANIZATIONAL PLAN SUGGESTED FOR MILLERS

MINNEAPOLIS, MINN.—Three proposed changes in the constitution and by-laws of the Association of Operative Millers have been suggested by a special committee of District 4 of that organization for the consideration of other district groups in advance of the national convention of the association next June. The three changes are (1) re-organization of the districts; (2) enlargement of the executive committee to include a representative from each of the districts, and (3) allocation to each district organization 20% of the due paid in to the national organization by members of the several districts.

The special committee of District 4 which drafted the proposal was made up of L. H. Patten, Farmers & Merchants Milling Co., Glencoe, Minn., chairman of District 4; C. R. Veeck, Eagle Roller Mill Co., New Ulm, Minn., vice chairman of District 4; Robert R. Brotherton, Bay State Milling Co., Winona, Minn., chairman of the national association's membership committee, and Walter H. Tarling, King Midas Flour Mills, a past national president and now chairman of the national association's finance committee.

Everything the same —except the Name

- same management
- same ownership
- same personnel

The same service to our customers will be maintained. Better envelopes for every business need are still available and your continued patronage will be appreciated.

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BERKOWITZ ENVELOPE CO.

A. W. Peterson, President
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Other factories in New York, St. Louis, Des Moines and Kansas City

La Grange Flours . . .

whether plain or enriched, remain the same high standard, dependable flours that have characterized the products of La Grange Mills over the half century and more of their operation.

This quality pattern is not an accident but the result of painstaking care in wheat selection and careful milling.

You can depend on LA GRANGE FLOURS

LA GRANGE MILLS RED WING, MINNESOTA

The Standard Others Strive to Reach

WHITE SWAN
FLOUR

SPRINGFIELD MILLING CORPORATION
MINNEAPOLIS • MINNESOTA

WOLF'S PREMIUM FLOUR

As fine a flour as you will find milled from the finest Turkey wheat in the heart of Kansas in

An Independent Mill

WOLF MILLING CO.
ELLINWOOD, KANSAS

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Manufacturer's Distributor
RED LION FLOUR
ALL FOOD PRODUCTS
38 PEARL ST. NEW YORK CITY

We specialize in designing and engraving for Millers and the Grain Trade
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Western King Flour
Uniform Bakery Flour
MANEY MILLING CO.
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HARDESTY MILLING CO.
Quality Millers *for* Over Half a Century
Domestic and Export DOVER, OHIO

"Hunter's CREAM"
A Kansas Turkey Wheat Flour
that for more than sixty years has stood at the very top of the fine quality list.
The Hunter Milling Co.
Wellington, Kansas

Stuffed Straights

FROM THE MANAGING EDITOR'S SIFTER

By Carroll K. Michener

WHEN MILLS WERE MANY.—It has been our custom, whenever guesses were going around the board about how big the flour milling establishment of this country was in the good old days, to say that at one time it numbered as many as 25,000 plants. But we never were able to come anywhere near proving it. Now, in browsing through the contents of THE NORTHWESTERN MILLER'S first HOLIDAY NUMBER, published in 1883, we come upon some corroborative statistics, based upon the United States Census of 1880. Here are the figures:

Number of establishments	24,338
Capital	$177,361,878
AVERAGE NUMBER OF HANDS EMPLOYED	
Males above 16 years	58,259
Females above 15 years	42
Children and youths	126
Wages	$17,422,316
Number of runs of stone	59,612
Daily capacity, bushels	4,730,106
Wheat—bus 304,775,737...value	$315,394,386
Other grain—bus 234,907,220...value	112,372,071
Value of mill supplies	13,788,768
Total value of all materials	441,545,225
Total value of all products	505,185,712

Most of the nearly 25,000 mills found by the census takers in 1880 were grist mills, of course, but the era of big merchant mills had already begun, as may be judged from the following table, also taken from the 1883 HOLIDAY NUMBER, showing mills then operating in Minneapolis:

THE MILLS OF MINNEAPOLIS

Name of mill—Operated by	Barrels 1882	Barrels 1883
WEST SIDE		
Anchor—C. A. Pillsbury & Co.	850	900
Cataract—D. R. Barber & Son.	600	600
Columbia—Columbia Mill Co.	...	1,000
Crown Roller—Christian Bros. & Co.	1,600	1,700
Dakota—H. F. Brown & Co.	200	250
Excelsior—C. A. Pillsbury & Co.	...	800
Galaxy—Cahill, Fletcher & Co.	800	1,000
Holly—F. S. Hinkle	250	250
Humboldt—Hinkle, Greenleaf & Co.	600	775
Minneapolis—Crocker, Fisk & Co.	...	600
*Model—R. P. Russell & Co.	250	...
National—Citizen's Bank	100	150
*North Star—H. J. G. Croswell	350	...
Northwestern—Sidle, Fletcher, Holmes Co.	1,100	1,300
Palisade—Washburn Mill Co.	550	1,500
Pettit—J. A. Christian & Co.	1,200	1,300
St. Anthony—Hinkle, Greenleaf & Co.	400	450
Standard—D. Morrison & Co.	1,200	1,500
Union—G. W. Goodrich & Co.	250	310
Washburn A	2,700	3,200
Washburn B	800	1,000
Washburn C	1,600	2,000
Washburn, Crosby & Co. Zenith—Sidle, Fletcher, Holmes Co.	600	600
EAST SIDE		
Pillsbury A—C. A. Pillsbury & Co.	5,000	5,200
Phoenix—Stamwitz & Schober	250	275
Total capacities	21,250	26,660

*Burned and not rebuilt.

(Maybe we shouldn't mention it, but today's Minneapolis milling capacity is around 30,000 bbls—not a lot bigger than six decades ago. Peak year was 1923, when listed capacity was 93,350.)

Flour produced by the Minneapolis mills of 60 years ago for three fiscal years ending Sept. 1 was thus reported by THE NORTHWESTERN MILLER:

	Bbls
1880-81	2,900,268
1881-82	2,301,667
1882-83	4,000,463

Minneapolis flour exports in this period were:

	Bbls		Bbls
1878	109,183	1881	1,181,322
1879	442,593	1881-82	1,627,686
1880	769,442	1882-83	1,700,750

(Greatest exporting year for Minneapolis mills was in 1899-1900, when 4,847,600 bbls went out to foreign markets. In the crop year 1942-1943 flour production was 6,916,413 bbls. Exports? None.)

Closely related to the size, character and distribution of the nation's flour milling establishment was the development of wheat culture. On this point THE NORTHWESTERN MILLER of 1883 said:

"The increase of wheat production in this country during 30 years is quite remarkable, and its progress westward equally notable. There has been an increase of nearly 14% on the Atlantic Coast, 427% in the central states, and 3,132% in the country beyond the Mississippi. In 10 years past the increase has been 63% in the central belt and 92% in the transmississippi region, though the actual increase in bushels was greater in the former—88,388,110 against 82,120,609 bus. The production of each grand division is thus shown for each decennial enumeration (bushels):

Section—	1849	1859
Atlantic Coast	51,657,020	52,294,137
Central belt	44,522,646	94,458,609
Transmississippi	5,306,278	25,352,178
Totals	100,485,944	172,104,924
Section—	**1869**	**1879**
Atlantic Coast	57,476,371	58,701,531
Central belt	140,877,070	259,265,180
Transmississippi	89,392,185	171,512,794
Totals	287,745,626	489,479,505

"The total production of wheat in the 10 wheat growing states in 1849 was 86,506,541 bus. In the same states in 1859 the production was 129,206,293 bus. In 1869, counting in California, Missouri and Minnesota, the production was 226,597,263 bus, and in 1879 the production had increased to 344,000,000 bus in the 10 states of Illinois, Indiana, Ohio, Michigan, Iowa, Minnesota, California, Missouri, Wisconsin and Pennsylvania."

To the Hon. Joseph Nimmo, Jr., chief of the bureau of statistics of the Treasury Department at Washington, the HOLIDAY NUMBER of 1883 gave credit for the subjoined table, showing breadstuffs exports from the United States at each half-cycle since Sept. 30, 1820—which was stated to be the earliest date at which a record was kept of this trade—up to Sept. 30, 1883:

Sept. 30—	Wheat Bus	Wheat Values
1821	25,821	$20,925
1825	17,990	18,570
1830	45,289	46,176
1835	47,762	51,405
1840	1,720,860	1,635,483
June 30—		
1845	389,716	336,779
1850	608,661	643,745
1855	798,884	1,329,246
1860	4,155,153	4,076,704
1865	9,937,876	19,398,028
1870	36,584,115	47,171,229
1875	53,047,177	59,607,863
1880	153,252,795	190,546,305
1883	106,385,828	119,879,341

Sept. 30—	Wheat flour Bus	Wheat flour Values
1821	1,056,119	$4,298,043
1825	813,906	4,212,127
1830	1,227,434	6,085,953
1835	779,396	4,394,777
1840	1,897,501	10,143,615
June 30—		
1845	1,195,230	5,398,593
1850	1,385,448	7,098,570
1855	1,204,540	10,896,908
1860	2,611,596	15,448,507
1865	2,641,298	27,507,084
1870	3,463,333	21,169,593
1875	3,973,128	23,712,440
1880	6,011,419	35,333,197
1883	9,205,664	54,824,459

Noteworthy is the fluctuation in the value of wheat flour. In 1820-21 it was a trifle over $4 bbl. In 1824-25 and 1829-30 it was about $5 bbl. In 1839-40 it was nearly $6, and in 1854-55 it was over $8. It reached the highest point indicated by these returns in 1864-65, over $10 bbl; had fallen below $7 in 1869-70, and below $6 in 1879-80.

"The last 10 years of milling history," commented THE NORTHWESTERN MILLER'S reviewer, "present a busy, unsettled record. It has left its mark on the mills of today. The transition from one system to another brought about first by the purifier, followed by complications of bolting, separations and grinding, and next the introduction of the system of gradual reduction with its additions and changes, has served to tax the energy and ingenuity of the people of that time. Many mills have gone through this period and followed its fluctuations, where the building and surroundings were intended only for the most primitive methods of earlier years; hence the patched, built-onto look of many exteriors and the jumbled, crowded, uncomfortable mixture of the interior. Many mills which have been built in recent years have an unsettled look and an unsystematic air, which was brought about by the consciousness that what was put in one year would probably have to be taken out the next. Less attention was paid to details than to principles, but now the matter of principle appearing to be fixed, there is an inducement for better arrangement and closer attention to details. There is now more time for quiet study and the working out of many of the nicer, finer points of milling which have never been touched. The unsettled state of affairs having been fatal to quiet, systematic study, there has been no chance for milling literature of the higher order. There are no milling works published in the English language worthy of serious consideration. The present time and condition of things are favorable to an interchange of thought and a development of a worthy milling literature."

Lord Woolton, as British minister of food, is one of the most powerful of wartime bureaucratic chiefs. But it is heartening to know that in peacetime he is head of a group of chain stores. For thus it is not surprising to find that, unlike most of the men who hold extraordinary controls over populations involved in war, he wants no state control of industry when the war is over. Speaking in Edinburgh recently, he said state control "dampened and deadened spirit and enterprise," and he hoped commerce would be unshackled from all such dampening and deadening influences as soon as circumstances might permit.

. . . Early in this century the late William C. Edgar, then the editor of THE NORTHWESTERN MILLER, had in mind an international museum of milling. He wanted to acquire the great collection of millstones and other flour milling antiquities which had been brought together in England by Richard Bennett, who, with his "Boswell," John Elton, prepared and published the classic but now out of print four-volume "History of Corn Milling" that was brought out in the years 1898-1904. Mr. Edgar's plan was forestalled by the fact that, before he could make his intentions known, Mr. Bennett was dead and his collection had been turned over to the Liverpool Museum. . . . Seeing a reference to this bit of milling history on this page in recent weeks, the editor of Milling, well-known British trade journal, made the matter current by reporting that Mr. Bennett's relics are "stored intact" (an implication, perhaps, of the danger of bomb damage?) in the basement of Liverpool's museum. It was rather a pity, he thinks, that Mr. Edgar's ambition did not materialize, for he finds that the Bennett collection "does not seem to be held in much regard by the millers of this country, most of whom are probably unaware of its existence." . . . Further on this topic Milling's editor writes: "Scattered in various museums and other places throughout the United Kingdom, there are many antiquities of flour milling, from which could be constructed a fairly complete history of milling. To accomplish the feat, another Bennett and Elton may be required and the longer the delay the more difficult their task will become. It is true that other important and urgent matters claim attention, and are likely to do so for many years to come, but history is never an idle study."

Feeds and the Colleges

(Continued from page 2.)

done to the extent it should have been. The exchange of ideas, the elimination of conflicts too often has been neglected. As a result, we sometimes have had the illogical situation of two or more of these groups who should be working together on the same job indulging in sharp criticism of each other, of working against each other on the job instead of together.

We have, of course, conflicts even within the feed industry, or between farm groups. It would be impossible to eliminate all of these, and perhaps it would not even be desirable to do so. Honest differences of opinion can result in progress if they are brought out and discussed by each party with an open mind and a sincere desire to reach a conclusion that would mean progress—that would result in the greatest general good.

But the criticism that is harmful is that which does not attempt to understand or give consideration to the other man's viewpoints or objectives or his proper function in the further development of an efficient and prosperous agriculture.

It seems to me that the commercial feed industry has been the victim of a great deal of this latter type of cirticism, particularly from some of the personnel in the colleges and in the extension service. The industry has expanded in spite of it and has, in fact, steadily reduced the volume of criticism from those sources. This has been accomplished very largely because there were a sufficient number of men and companies in the feed industry who had the breadth of vision and the courage to hold to a high standard in developing their businesses. They possessed a consciousness that the commercial feed industry could grow and prosper only to the extent that it served agriculture. They built on a foundation of sound knowledge of nutrition, respect for research and constant controls over those factors in feedstuffs that mean the difference between good results or poor results in the feedlot.

The foresight of these men has been rewarded, both in the steady growth of the feed industry and in the recognition given them and the industry by many of the outstanding authorities in animal and poultry nutrition connected with the leading agricultural colleges and experiment stations. A considerable number of men who had proved their ability at the colleges and stations have become directly identified with the feed industry, and there are many others of high reputations and accomplishments who no longer blindly criticize the manufacturer of commercial feeds, but who help him to make better feeds and who see in him a valuable aid in translating the work of the research station into practical feedlot results.

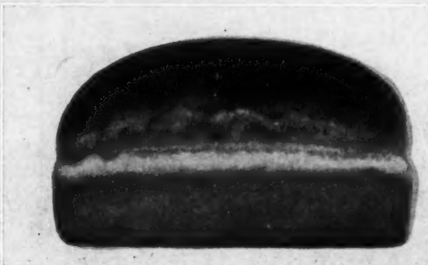
There still are a great number, however, and perhaps they are a majority, in the colleges and stations whose attitude toward the commercial feed industry ranges all the way from outright enmity to tolerance. It may be that those men unfortunately know only the products of the shoddy or incompetent feed manufacturers; it may be that insufficient effort has been made by the better feed men to gain their support by giving them indisputable evidence of their worth; or, it may be that in some cases their minds simply are closed to the subject. Regardless of the reason, it is a problem for the feed industry to solve, or at least to take the lead in solving. Those men should be aiding the feed industry, and the feed industry should be aiding them in furthering the general good of agriculture. They should be working together on the same task, and if they are working against each other it is because of some fault or some misunderstanding that can best be overcome by bringing it out into the open and discussing it with each other.

Correcting this situation is in large part a responsibility of the feed industry, in the first place because it is up to the industry to prove its case and the institutions are not in position to take the lead in the matter; and in the second place, as a preliminary to such a development, some alignment within the industry would be necessary in order to focus its truly representative thinking within workable or practicable bounds.

Small mixers as well as large ones must be included in this project. The increase in numbers of small feed mixing plants during the past 10 years is evidence enough that no voice of the industry can be authentic without them. Also, it is probable that on the whole these small mixers have and will continue to have a greater influence than the larger manufacturers on feeding efficiency, mixed feed quality, mixed feed use and the general reputation of the commercial feed industry. The reason for this partly is weight of numbers and partly their location on the firing line—in the areas where the feed will be

(Continued on page 41.)

Be Proud of Your Job,
As We are of Ours...
for



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Any Grade—Any Quantity—Any Time

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A flour without an equal anywhere
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Low cost laboratory controlled mill grinding all types of wheat
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Great Bread Makers
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Ideal for Poultry Mashes
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Daily Capacity 2,000 bbls

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NEW ENGLAND BAKERS DISCUSS FOOD DISTRIBUTION ORDER NO. 1

Speakers Note Benefits to Industry in the Rigid Enforcement of Regulation and Recommend Benefits Be Continued After War—Postwar Planning Committee Appointed

BOSTON, MASS.—The highlight of the annual convention of the New England Bakers Association, held at the Statler Hotel, Boston, Nov. 28-29, was the discussion of Food Distribution Order No. 1 under the chairmanship of Marshall F. Spear, regional food order administrator, New York. John D. Dickson, president of the association, said that the order is necessary for the conservation of foodstuffs, and that it has benefited the baking industry, which he described as being fortunate in many ways. He urged that the provisions of the order be retained during the postwar period.

George N. Graf, director of merchandising, Quality Bakers of America, said that the no-consignment selling restrictions has now become a law and that there is tremendous advantage for the baking industry in compliance with it. "This law," he continued, "saves the baking industry one half cent a pound of bread, which will be urgently needed by next spring.

"Bakers had been overloading grocers with bread and cake so that one out of three items were more than 24 hours old when they reached consumers," he said. Mr. Graf attributed the increased consumption of bakery products to the fact that consumers are getting fresher goods and said that the way to retain this increased consumption is to see that this condition continues.

"Prior to the war," Mr. Graf continued, "there was a pronounced drift away from bread sales by grocers. However, FDO-1 has provided a practical solution for wholesale distribution in the postwar period." He warned that through the publication of price markups, OPA is telling consumers that independent distributors charge more than super markets and chain stores. He predicted a great growth of grocery cooperatives after the war, and said that bakers must reduce their cost of operation. At the conclusion of his address, Mr. Graf declared that the law cannot be retained unless bakers will it.

Following these addresses, a general discussion took place regarding the operation of the law. John T. McCarthy, president of the American Bakers Association, spoke of the benefits which have accrued to the baking industry as a result of the present legislation.

Mr. McCarthy spoke of the outlook for the baking industry two years ago when the American Bakers Association held its annual convention in Boston, and said that many of the predictions made then have come true. "The baking industry," he continued, "has been able to live up to the provisions of the present law and still remain solvent. Food is at the forefront of all commodities and bakery products are in a specially favored position. Bakers are not faced with reconversion or renegotiation problems.

"Bakers will continue making their own type of products and will have no trouble except that which they bring on themselves." Mr. McCarthy recommended that the benefits of the present law be continued after the war, and added that 90% of the bakers of the country are back of the existing orders.

At a meeting of the board of governors of the New England Bakers Association it was decided to create a planning committee to cope with postwar problems. Joseph D. Noonan was elected a vice president of the association, to head the retail end of the organization; Collis Beck, Providence, R. I., and Joseph D. Marcott, Boston, were elected governors of the association to represent the same group.

—BREAD IS THE STAFF OF LIFE—

FLOUR ENRICHMENT TOPIC AT KANSAS CITY MEETING

KANSAS CITY, MO.—The problem of adding the correct quantity of synthetic vitamins to flour excited much comment and discussion at the annual winter meeting of District 2, Association of Operative Millers, held here Dec. 4. Many mill superintendents are seeking solutions to the problem which would take into account the natural vitamins contained in the flour before enrichment.

John Strang, representative of Wallace & Tiernan Co., Inc., pointed out that the danger of attempting to take into account all of the vitamins in the natural flour makes it almost worth while to eliminate that consideration entirely and use a standard enrichment that will enrich adequately all flour in the mill. Mr. Strang said that the variation in natural vitamin content is plus or minus 5% for thiamine and 10% for riboflavin, so that it is necessary to use a 10% safety factor in computing the amount of synthetic vitamins to add in order to insure the minimum amount as prescribed by federal regulations.

Other discussions were held on the general subjects of the amount of shriveled wheat in mill mixes, the labor shortage, and starting up a cold mill.

—BREAD IS THE STAFF OF LIFE—

ADVISORY COMMITTEE FOR MACHINERY IS ORGANIZED

WASHINGTON, D. C.—Formation of an agricultural and food machinery committee has been announced by the Combined Production and Resource Board, in conjunction with the Combined Food Board, following a meeting here. The committee will "assemble all pertinent facts and recommend such action as may be advisable on all problems concerning requirements, supplies, production and distribution of agricultural implements and machinery and food processing machinery."

J. S. Duncan, president of the Massey-Harris Co., Ltd., of Canada, is chairman of the committee for the Combined Production and Resources Board. Herbert H. Bloom, administrator of farm and construction machinery of the War-time Prices and Trade Board of Canada, represents the Canadian section of the Combined Food Board. Other members are:

For the United States, M. Lee Marshall, chairman of the board of directors, Continental Baking Co., representing CPRB, and J. W. Millard, director of the office of materials and faciilties of the War Food Administration.

For Great Britain, T. H. Brand, British executive officer of the Combined Production and Resources Board, and Maurice I. Hutton, British executive officer of the Combined Food Board.

Scope of the committee's work is broad and one of its primary concerns will be to make recommendations for the production and distribution of the agricultural implements and machinery and the food processing machinery required by the war effort, including the needs for the liberated areas as they may be developed by the appropriate agencies.

The combined boards are the mechanisms used to make available in the most effective manner the resources of the United States and the United Kingdom and Canada for the supply of such requirements as may be developed by the appropriate agencies.

—BREAD IS THE STAFF OF LIFE—

FLOUR USE DEMONSTRATIONS

CHICAGO, ILL.—Home economics students at North Central College, Naperville, Ill., learned about bread baking recently when Miss Alma Swenson, Wheat Flour Institute representative, gave a flour use demonstration there. This is the first time that such a demonstration has been presented there. At Peabody College, Nashville, Tenn., Miss See Rice again presented a demonstration to 67 students. Demonstrations at Peabody are an annual event which students and faculty members look forward to.

—BREAD IS THE STAFF OF LIFE—

HOPE FOR LIBERALIZED MILL MACHINERY QUOTAS

WASHINGTON, D. C.—Cereal and milling machinery officials with the War Production Board are hopeful that the requirements committee will approve a more liberal schedule of production of this type of equipment during the coming year. Recent schedules that have been issued under Limitation Order L-292 have granted production increases from the original order and probably are indicators of future actions.

The present 50% production level on a machine unit basis is too rigid to meet requirements, some WPB officials assert. In many instances the unit basis penalizes manufacturers who did not have production history for certain types of machines during the base years established by the regulation. While WPB is hopeful that an expanded production schedule will be issued, they cite manpower shortages in certain areas which may influence the decision in allocating quotas to some plants.

The industry committee will meet here again this week and it is possible that a final program will be approved for submission to the WPB requirements committee. It is also planned to add flexibility to the production schedule when it is issued.

—BREAD IS THE STAFF OF LIFE—

Flaxseed Receipts, Shipments and Stocks

Receipts, shipments and stocks of flaxseed at principal primary points for the week ended Dec. 4, in thousand bushels, with comparisons:

	Receipts		Shipments		Stocks	
	1943	1942	1943	1942	1943	1942
Minneapolis	269	278	63	24	4,047	2,642
Duluth	317	45	1,192	887	1,734	580

FEED AND LIVESTOCK BRANCH IN WFA SET-UP

Correlation of All Activities Concerning Feeds and Feeding Sought— Walter Berger Appointed

Walter Berger, president of the Des Moines (Iowa) Oat Products Co., will go to Washington on Dec. 1 to become head of a newly established Feed and Livestock Branch of the War Food Administration.

His job will be to establish a program to obtain the maximum production of meat and dairy and poultry products, and to correlate the activities of all government departments, industries and other groups involved in such a program. In doing this he will work with the farm organizations, the feed industry, the Agricultural Adjustment Administration, the Commodity Credit Corp. and other federal agencies, agricultural colleges and the extension service.

The official announcement of the appointment from Washington said that "Mr. Berger, who is regarded as a spokesman for the small feed mixers and dealers on the Feed Industry Council, will administer food production orders relating to feed and livestock matters, and will carry on other duties in this general line of activity as assigned by Director Hutson of the Food Production Administration."

Mr. Berger, who is about 43 years old, established the Des Moines Oat Products Co. several years ago and has built it into a prosperous concern. Prior to that he had been engaged in various phases of the feed business in the Middle West for virtually all of his business career. Recently, he has devoted a great deal of his time and energies to the protein conservation program in Iowa and neighboring states. He has served as a member of the Feed Industry Council since its organization last January. He also has been one of the most active members of the Western Grain & Feed Association, which has its headquarters in Des Moines.

Mr. Berger was reared on an Iowa farm and was graduated from Iowa State College, Ames.

During Mr. Berger's leave of absence in Washington his own company will be operated by the remaining personnel.

—BREAD IS THE STAFF OF LIFE—

CARGILL PURCHASES HUGE CHICAGO GRAIN ELEVATOR

Cargill, Inc., has purchased one of the largest grain elevators in the country for $1,783,545 from the Chicago & North Western Railroad. Charles M. Thomson, trustee for the railroad who negotiated the sale, said the Cargill company has had the property under lease. The elevators occupy approximately 84 acres of land in South Chicago and their combined capacity, reportedly 10,564,000 bus of grain, represents about 20% of Chicago's total grain elevator storage space.

—BREAD IS THE STAFF OF LIFE—

ELEVATOR SUPERINTENDENTS MEET

MINNEAPOLIS, MINN.—R. T. Schaeffer, manager of the Hennepin County Red Cross, discussed the plight of the civilian population in Poland at the meeting of the Minneapolis chapter of the Society of Grain Elevator Superintendents on Dec. 7. A buffet supper preceded the meeting.

Key to Zone Number on Bakery Flour Price Chart

(See Map on Pages 22 and 23)

Zone	Protein Content	Price Ceiling or Price Ceiling Formula
I. (a) 1.	13.5% or less	$3.34 } plus proportional rate
	Over 13.5%	3.54 } from Minneapolis.
I. (a) 2.	13.5% or less	3.31 } plus proportional rate
	Over 13.5%	3.38 } from Kansas City to Louisville or Cincinnati, plus proportional rate from Louisville or Cincinnati on billing originating in Ohio and Indiana, whichever is lower.
I. (a) 3.	13.5% or less	3.31 } plus proportional rate
	Over 13.5%	3.38 } from Kansas City.
I. (b)	13.5% or less	3.32
	Over 13.5%	3.39
I. (c)	13.5% or less	3.06 } plus carload rate from
	Over 13.5%	3.13 } Enid.
I. (d) 1.	13.5% or less	3.31 } plus proportional rate
	Over 13.5%	3.38 } from Kansas City.
I. (d) 2. (Group A)	13.5% or less Over 13.5%	3.36 3.43
I. (d) 2. (B C D M)	13.5% or less Over 13.5%	3.39 3.46
I. (d) 2. (E J J-1 K)	13.5% or less Over 13.5%	3.44 3.51
I. (e)	13.5% or less	3.31 } plus proportional rate
	Over 13.5%	3.38 } from Kansas City.
I. (f) 1.	13.5% or less	3.31
	Over 13.5%	3.38
I. (f) 2.	13.5% or less	3.36
	Over 13.5%	3.43
I. (f) 3.	13.5% or less	3.39
	Over 13.5%	3.46
I. (f) 4.	13.5% or less	3.41
	Over 13.5%	3.48
I. (g) 1.	13.5% or less	3.31
	Over 13.5%	3.38
I. (g) 2.	13.5% or less	3.36
	Over 13.5%	3.43
I. (g) 3.	13.5% or less	3.34
	Over 13.5%	3.41
I. (g) 4.	13.5% or less	3.41
	Over 13.5%	3.48
I. (h)	13.5% or less	3.31 } plus proportional rate
	Over 13.5%	3.38 } from Omaha.
I. (i) 1.	13.5% or less	3.34
	Over 13.5%	3.54
I. (i) 2.	13.5% or less	3.34 } plus lowest intrastate
	Over 13.5%	3.54 } proportional rate from Minneapolis.
I. (j)	13.5% or less	3.34 } plus proportional rate
	Over 13.5%	3.54 } from Minneapolis.
I. (k)	13.5% or less	3.24
	Over 13.5%	3.44
I. (l)	13.5% or less	3.34
	Over 13.5%	3.54
I. (m) 1.	13.5% or less	3.09 } plus highest carload
	Over 13.5%	3.29 } rate from Sidney.
I. (m) 2.	13.5% or less	3.02 } plus highest carload
	Over 13.5%	3.22 } rate from Great Falls or from Billings, whichever is lower.
I. (n) 1.	13.5% or less	3.04 } plus flat carload rate
	Over 13.5%	3.11 } from Sterling, Colo.
I. (n) 2.	13.5% or less	3.38 } plus transit balance
	Over 13.5%	3.58 } rate from Ogden using Bancroft, Ida., transit.
I. (n) 3.	13.5% or less	2.98 } plus flat carload rate
	Over 13.5%	3.12 } from Billings, Mont.
I. (o) 1.	13.5% or less	3.22
	Over 13.5%	3.29
I. (o) 2.	13.5% or less	3.27
	Over 13.5%	3.34
I. (o) 3.	13.5% or less	3.04 } plus flat carload rate
	Over 13.5%	3.11 } from Sterling, Colo.
I. (p) 1.	13.5% or less	3.06 } plus flat carload rate
	Over 13.5%	3.13 } from Enid.
I. (p) 2.	13.5% or less	3.04 } plus flat carload rate
	Over 13.5%	3.11 } from Sterling, Colo.
II. (a) 1.	Less than 10%	2.77 } plus flat carload rate
	10% to 13.4%	3.06 } from Spokane.
	13.5% or greater	3.26
II. (a) 2.	Less than 10%	2.93
	10% to 13.4%	3.22
	13.5% or greater	3.42
II. (a) 3.	Less than 10%	2.97
	10% to 13.4%	3.26
	13.5% or greater	3.46
II. (a) 4.	Less than 10%	2.97
	10% to 13.4%	3.26
	13.5% or greater	3.46
II. (a) 5.	Less than 10%	2.97
	10% to 13.4%	3.26
	13.5% or greater	3.46
II. (a) 6.	Less than 10%	2.77 } plus flat carload rate
	10% to 13.4%	3.06 } from Spokane.
	13.5% or greater	3.26
II. (a) 7.	Less than 10%	3.10 } plus transit balance
	10% to 13.4%	3.38 } rate from Ogden using
	13.5% or greater	3.58 } Bancroft, Ida., transit.
II. (b)	Less than 10%	2.77 } plus flat carload rate
	10% to 13.4%	3.06 } from Spokane.
	13.5% or greater	3.26
II. (c)	Less than 10%	3.10 } plus flat carload rate
	10% to 13.4%	3.38 } from Ogden or transit
	13.5% or greater	3.58 } balance rate from Ogden, using Bancroft, Idaho, transit, whichever is lower.

SPECIFIC MARKET CEILINGS

HARD WHEAT BAKERY FLOUR

To facilitate calculation of flour price ceilings at important markets, the accompanying tables are published. They were prepared by J. W. Holloway, executive secretary of the Kansas-Missouri River Mills and the Associated Millers of Kansas Wheat. They show the ceiling prices in dollars and cents at a number of important flour buying markets where freight rates are a factor, outside the Pacific area. The prices are for bakery flour, other than soft wheat flour, packed in 100-lb cotton sacks, carload quantities. To get bulk prices deduct 16c.

★ ★ ★

	13.5% or less protein	Over 13.5% protein
ALABAMA—		
Akron	$3.77	$3.84
Alicevile	3.77	3.84
Altoona	3.77	3.84
Andalusia	3.86	3.93
Anniston	3.80	3.87
Atmore	3.77	3.84
Birmingham	3.77	3.84
Blocton	3.80	3.87
Boligee	3.77	3.84
Brownville	3.85	3.92
Calera	3.79	3.86
Cardiff	3.77	3.84
Chelsea	3.80	3.87
Childersburg	3.83	3.90
Colta	3.79	3.86
Decatur	3.77	3.84
Demopolis	3.77	3.84
Dothan	3.88	3.95
Eufaula	3.87	3.94
Flomaton	3.77	3.84
Florence	3.73	3.80
Foley	3.77	3.84
Gadsden	3.80	3.87
Greensboro	3.79	3.86
Greenville	3.83	3.90
Haleyville	3.77	3.84
Hartford	3.88	3.95
Heflin	3.83	3.90
Huntsville	3.77	3.84
Jasper	3.77	3.84
Kimbrough	3.83	3.90
Lafayette	3.86	3.93
Luverne	3.86	3.93
Maplesville	3.79	3.86
Mobile	3.69	3.76
Montgomery	3.79	3.86
Opelika	3.86	3.93
Pell City	3.80	3.87
Reform	3.77	3.84
Roanoke	3.86	3.93
Selma	3.79	3.86
Stevenson	3.77	3.84
Talladega	3.83	3.90
Tuscaloosa	3.77	3.84
Tuskegee	3.86	3.93
Warrior	3.79	3.86
Wattsville	3.80	3.87
Winfield	3.84	3.91
Yolande	3.77	3.84
York	3.77	3.84
ARIZONA—		
Bisbee	3.64	3.71
Holbrook	3.64	3.71
Phoenix	3.69	3.76
Tucson	3.64	3.71
ARKANSAS—		
Arkadelphia	3.53	3.60
Arkansas City	3.53	3.60
Ashdown	3.50	3.57
Batesville	3.51	3.58
Benton	3.53	3.60
Bentonville	3.47	3.54
Blytheville	3.51	3.58
Brinkley	3.51	3.58
Camden	3.53	3.60
Clarksville	3.49	3.56
Conway	3.51	3.58
Corning	3.51	3.58
Danville	3.50	3.57
DeQueen	3.50	3.57
DeVall's Bluff	3.51	3.58
El Dorado	3.53	3.60
Eureka Springs	3.47	3.54
Fayetteville	3.47	3.54
Fort Smith	3.47	3.54
Forrest City	3.51	3.58
Gravette	3.47	3.54
Gurdon	3.53	3.60
Hamburg	3.53	3.60
Hardy	3.51	3.58
Harrison	3.49	3.56
Heber Springs	3.51	3.58
Helena	3.53	3.60
Hope	3.53	3.60
Hot Springs	3.53	3.60
Hoxie	3.51	3.58
Jonesboro	3.51	3.58
Little Rock	3.51	3.58
Malvern	3.53	3.60
Mammoth Springs	3.51	3.58
Marion	3.51	3.58
Mena	3.50	3.57
Paragould	3.51	3.58
Perry	3.51	3.58
Piggott	3.51	3.58
Pine Bluff	3.51	3.58
Russellville	3.50	3.57
Searcy	3.51	3.58
Texarkana	3.53	3.60
Walnut Ridge	3.51	3.58
Warren	3.53	3.60
Wynne	3.51	3.58
Yellville	3.50	3.57
COLORADO—		
Burlington	3.22	3.29
Cheyenne Wells	3.27	3.34
Colorado Springs	3.27	3.34
Denver	3.22	3.29
Eads	3.27	3.34
Fort Morgan	3.22	3.29
Greeley	3.22	3.29
Haswell	3.27	3.34
Kit Carson	3.27	3.34
La Junta	3.27	3.34
Lamar	3.27	3.34
Las Animas	3.27	3.34
Pritchett	3.27	3.34
Pueblo	3.27	3.34
Sheridan Lake	3.27	3.34
Springfield	3.27	3.34
Sterling	3.22	3.29
Stratton	3.22	3.29
Sugar City	3.27	3.34
Trinidad	3.27	3.34
Wray	3.22	3.29
Yuma	3.22	3.29
CONNECTICUT—		
Bridgeport	3.77	3.97
Danbury	3.77	3.97
Hartford	3.77	3.97
Middletown	3.77	3.97
New Haven	3.77	3.97
New London	3.77	3.97
Norwich	3.77	3.97
Waterbury	3.77	3.97
Willimantic	3.77	3.97
DELAWARE—		
Dover	3.75	3.95
Georgetown	3.75	3.95
Wilmington	3.73	3.93
DISTRICT OF COLUMBIA—		
Washington	3.72	3.92
FLORIDA—		
*Apalachicola (a)	4.00	4.07
(b)	3.93	4.00
Bradenton	3.97	4.04
Chattahoochee	3.91	3.98
Daytona Beach	3.93	4.00
Everglades	3.97	4.04
Fernandina	3.86	3.93
Gainesville	3.93	4.00
Jacksonville	3.86	3.92
Lake City	3.93	4.00
Live Oak	3.92	3.99
Miami	3.97	4.04
Ocala	3.93	4.00
Orlando	3.95	4.02
Palatka	3.93	4.00
Pensacola	3.69	3.76
Plant City	3.95	4.02
St. Augustine	3.93	4.00
St. Petersburg	3.95	4.02
Tallahassee	3.91	3.98
Tampa	3.89	3.96
Williston	3.93	4.00
Yukon	3.93	4.00
*(a) Expires with Dec. 9, 1943. (b) Effective Dec. 10, 1943.		
GEORGIA—		
Albany	3.89	3.96
Americus	3.88	3.95
Athens	3.86	3.93
Atlanta	3.83	3.90
Augusta	3.88	3.95
Bainbridge	3.90	3.97
Bremen	3.83	3.90
Brunswick	3.86	3.93
Camak	3.87	3.94
Cartersville	3.83	3.90
Columbus	3.86	3.93
Cordele	3.88	3.95
Dalton	3.80	3.87
Dublin	3.88	3.95
Gainesville	3.85	3.92
Griffin	3.84	3.91
Helena	3.88	3.95
Jesup	3.91	3.98
La Grange	3.85	3.92
Macon	3.85	3.92
Newnan	3.84	3.91
Rome	3.80	3.87
Savannah	3.86	3.93
Tennille	3.88	3.95
Thomasville	3.91	3.98
Valdosta	3.91	3.98
Waycross	3.92	3.99
Waynesboro	3.89	3.96
ILLINOIS—		
Aurora	3.47	3.67
Belleville	3.56	3.76
Bloomington	3.54	3.74
Cairo	3.61	3.81
Centralia	3.61	3.81
Champaign	3.58	3.78
Chicago	3.47	3.67
Clinton	3.54	3.74
Danville	3.58	3.78
Decatur	3.54	3.74
De Kalb	3.47	3.67
East St. Louis	3.54	3.74
Effingham	3.61	3.81
Eldorado	3.62	3.82
Elgin	3.47	3.67
Freeport	3.47	3.67
Galesburg	3.47	3.67
Gilman	3.54	3.74
Harrisburg	3.62	3.82
Havana	3.54	3.74
Jacksonville	3.54	3.74
Joliet	3.47	3.67
Kankakee	3.54	3.74
Lawrenceville	3.61	3.81
Lincoln	3.54	3.74
Litchfield	3.54	3.74
McLeansboro	3.61	3.81
Macomb	3.54	3.74
Marion	3.61	3.81
Mattoon	3.58	3.78
Metropolis	3.61	3.81
Minonk	3.47	3.67
Mount Vernon	3.61	3.81
Murphysboro	3.61	3.81
Newton	3.61	3.81
Olney	3.61	3.81
Ottawa	3.47	3.67
Pana	3.61	3.81
Paris	3.58	3.78
Peoria	3.47	3.67
Peru	3.47	3.67
Pinckneyville	3.61	3.81
Quincy	3.54	3.74
Robinson	3.61	3.81
Rockford	3.47	3.67
Rock Island	3.47	3.67
Springfield	3.54	3.74
Streator	3.48	3.68
Vienna	3.61	3.81
Watseka	3.58	3.78
INDIANA—		
Alexandria	3.62	3.82
Anderson	3.62	3.82
Attica	3.61	3.81
Auburn	3.62	3.82
Bedford	3.63	3.83
Bluffton	3.62	3.82
Brazil	3.62	3.82
Clay City	3.63	3.83
Columbia City	3.62	3.82
Columbus	3.63	3.83
Connersville	3.63	3.83
Crawfordville	3.62	3.82
Decatur	3.62	3.82
Delhi	3.61	3.81
Dunkirk	3.62	3.82
Evansville	3.62	3.82
Fort Wayne	3.62	3.82
Frankfort	3.62	3.82
Gas City	3.62	3.82
Goshen	3.61	3.81
Greencastle	3.62	3.82
Hillsdale	3.62	3.82
Indianapolis	3.62	3.82
Jeffersonville	3.63	3.83
Kokomo	3.61	3.81
La Crosse	3.60	3.80
La Fayette	3.61	3.81
La Porte	3.60	3.80
Linden	3.62	3.82
Logansport	3.61	3.81
Marion	3.62	3.82
Michigan City	3.60	3.80
Muncie	3.62	3.82
New Albany	3.63	3.83
New Castle	3.62	3.82
Noblesville	3.62	3.82
North Vernon	3.63	3.83
Peru	3.61	3.81
Portland	3.62	3.82
Princeton	3.63	3.83
Red Key	3.62	3.82
Richmond	3.62	3.82
Rushville	3.63	3.83
Seymour	3.63	3.83
Shelbyville	3.63	3.83

	13.5% or less protein	Over 13.5% protein
South Bend	3.61	3.81
Sullivan	3.63	3.83
Switz City	3.63	3.83
Terre Haute	3.62	3.82
Valparaiso	3.60	3.80
Veedersburg	3.61	3.81
Vincennes	3.63	3.83
Washington	3.63	3.83
Wolcottville	3.62	3.82
IOWA—		
Algona	3.43	3.50
Atlantic	3.38	3.45
Boone	3.41	3.48
Burlington	3.45	3.52
Carroll	3.39	3.46
Cedar Falls	3.45	3.52
Cedar Rapids	3.45	3.52
Centerville	3.44	3.51
Charles City	3.45	3.52
Cherokee	3.42	3.49
Clarinda	3.38	3.45
Clinton	3.45	3.52
Council Bluffs	3.32	3.39
Davenport	3.45	3.52
Decorah	3.47	3.54
Des Moines	3.41	3.48
Dubuque	3.45	3.52
Eagle Grove	3.42	3.49
Estherville	3.43	3.50
Forest City	3.43	3.50
Fort Dodge	3.41	3.48
Fort Madison	3.45	3.52
Grinnell	3.43	3.50
Hamburg	3.38	3.45
Hawarden	3.42	3.49
Iowa City	3.45	3.52
Iowa Falls	3.43	3.50
Keokuk	3.45	3.52
Malvern	3.38	3.45
Manning	3.38	3.45
Marshalltown	3.43	3.50
Mason City	3.43	3.50
Muscatine	3.45	3.52
Oelwein	3.45	3.52
Ottumwa	3.44	3.51
Rock Rapids	3.42	3.49
Rockwell City	3.40	3.47
Sheldon	3.42	3.49
Shenandoah	3.38	3.45
Sibley	3.42	3.49
Sioux City	3.35	3.42
Sioux Rapids	3.43	3.50
Spencer	3.43	3.50
Washington	3.45	3.52
Waterloo	3.45	3.52
Webster City	3.42	3.49
KANSAS—		
East of the eastern boundary of Phillips, Rooks, Ellis, Rush, Pawnee, Edwards, Kiowa and Comanche counties	3.31	3.38
Except—Linn, Anderson, Allen, Bourbon, Crawford, Neosho, Labette and Cherokee counties	3.36	3.43
West of line named	3.39	3.46
Except—Cheyenne, Rawlins and Decatur counties	3.41	3.48
KENTUCKY—		
Ashland	3.68	3.88
Bowling Green	3.67	3.74
Corbin	3.71	3.78
Elizabethtown	3.62	3.69
Frankfort	3.62	3.69
Franklin	3.67	3.74
Harlan	3.74	3.81
Henderson	3.65	3.85
Hopkinsville	3.68	3.75
Lexington	3.62	3.69
Louisville	3.65	3.85
Madisonville	3.67	3.74
Maysville	3.65	3.85
Morganfield	3.67	3.74
Mount Sterling	3.67	3.74
Owensboro	3.65	3.85
Paducah	3.53	3.60
Paris	3.62	3.69
Winchester	3.62	3.69
LOUISIANA—		
Alexandria	3.43	3.50
Baton Rouge	3.50	3.57
De Ridder	3.46	3.53
Eunice	3.46	3.53
Georgetown	3.43	3.50
Hammond	3.60	3.67
La Fayette	3.46	3.53
Lake Charles	3.46	3.53
Logansport	3.43	3.50
Mansfield	3.43	3.50
Monroe	3.40	3.47
New Orleans	3.50	3.57
Oakdale	3.46	3.53
Opelousas	3.46	3.53
Ruston	3.40	3.47
Shreveport	3.40	3.47
Tallulah	3.40	3.47
Vidalia	3.43	3.50
Winnfield	3.43	3.50
MAINE—		
Auburn	3.77	3.97
Augusta	3.77	3.97
Bangor	3.77	3.97
Bath	3.77	3.97
Dover-Foxcroft	3.77	3.97
Houlton	3.92	4.12
Portland	3.77	3.97
Rockland	3.77	3.97
Waterville	3.77	3.97
MARYLAND—		
Baltimore	3.72	3.92
Cambridge	3.75	3.95
Centreville	3.75	3.95
Cumberland	3.71	3.91
Elkton	3.73	3.93
Hagerstown	3.72	3.92
Oakland	3.71	3.91
Westminster	3.72	3.92
MASSACHUSETTS—		
Boston	3.77	3.97
Clinton	3.77	3.97
Fall River	3.77	3.97
Fitchburg	3.77	3.97
Framington	3.77	3.97
Greenfield	3.77	3.97
Lowell	3.77	3.97
New Bedford	3.77	3.97
Northampton	3.77	3.97
Springfield	3.77	3.97
Westfield	3.77	3.97
Worcester	3.77	3.97
MICHIGAN—		
Albion	3.62	3.82
Ann Arbor	3.63	3.83
Bad Axe	3.64	3.84
Battle Creek	3.62	3.82
Bay City	3.62	3.82
Benton Harbor	3.61	3.81
Big Rapids	3.62	3.82
Cadillac	3.61	3.81
Calumet	3.60	3.80
Cheboygan	3.64	3.84
Crystal Falls	3.52	3.72
Detroit	3.63	3.83
Escanaba	3.52	3.72
Frankfort	3.61	3.81
Flint	3.62	3.82
Grand Rapids	3.61	3.81
Iron Mountain	3.52	3.72
Ishpeming	3.54	3.74
Jackson	3.63	3.83
Kalamazoo	3.62	3.82
Lansing	3.62	3.82
Lapeer	3.62	3.82
Marquette	3.54	3.74
Menominee	3.50	3.70
Muskegon	3.61	3.81
Port Huron	3.64	3.84
Sault Ste. Marie	3.57	3.77
Sturgis	3.62	3.82
Ypsilanti	3.63	3.83
MISSISSIPPI—		
Aberdeen	3.65	3.72
Amory	3.65	3.72
Biloxi	3.72	3.79
Brookhaven	3.67	3.74
Canton	3.66	3.73
Clarksdale	3.65	3.72
Cleveland	3.65	3.72
Columbus	3.65	3.72
Corinth	3.60	3.67
Durant	3.65	3.72
Fulton	3.70	3.77
Greenville	3.62	3.69
Greenwood	3.65	3.72
Grenada	3.65	3.72
Gulfport	3.69	3.76
Hattiesburg	3.67	3.74
Holly Springs	3.62	3.69
Jackson	3.66	3.73
Laurel	3.67	3.74
Lumberton	3.69	3.76
Meridian	3.66	3.73
Moorhead	3.65	3.72
Natchez	3.56	3.63
New Albany	3.62	3.69
Tupelo	3.62	3.69
Vicksburg	3.53	3.60
MISSOURI—		
Albany	3.40	3.47
Aurora	3.39	3.46
Bismarck	3.51	3.58
Boonville	3.41	3.48
Butler	3.36	3.43
Cabool	3.44	3.51
California	3.41	3.48
Carrollton	3.38	3.45
Cape Girardeau	3.51	3.58
Carthage	3.39	3.46
Charleston	3.51	3.58
Chillicothe	3.39	3.46
Columbia	3.42	3.49
Delta	3.51	3.58
Dexter	3.51	3.58
Dunn	3.44	3.51
Fredericktown	3.51	3.58
Gallatin	3.39	3.46
Grant City	3.40	3.47
Hannibal	3.43	3.50
Harrisonville	3.36	3.43
Hermann	3.43	3.50
Higginsville	3.38	3.45
Huntsville	3.40	3.47
Jefferson City	3.43	3.50
Joplin	3.39	3.46
Kahoka	3.44	3.51
Kirksville	3.42	3.49
Lamar	3.39	3.46
Lebanon	3.44	3.51
Lilbourn	3.51	3.58
Louisiana	3.43	3.50
Malden	3.51	3.58
Mansfield	3.44	3.51
Marshall	3.39	3.46
Marshfield	3.44	3.51
Mexico	3.42	3.49
Milan	3.41	3.48
Moberly	3.41	3.48
Neosho	3.39	3.46
Nevada	3.36	3.43
Plattsburg	3.38	3.45
Poplar Bluff	3.51	3.58
Princeton	3.40	3.47
Rolla	3.44	3.51
St. Louis	3.43	3.50
Sargent	3.50	3.57
Savannah	3.38	3.45
Sedalia	3.40	3.47
Seymour	3.44	3.51
Sikeston	3.51	3.58
Springfield	3.39	3.46
Steelville	3.44	3.51
Thayer	3.50	3.57
Trenton	3.39	3.46
Union	3.43	3.50
Versailles	3.41	3.48
Warrensburg	3.40	3.47
Washington	3.43	3.50
West Plains	3.50	3.57
Willow Springs	3.50	3.57
NEBRASKA—		
(1) All of southeast Nebraska, bounded on the north by the northern boundary of Douglas, Dodge, Colfax, Platte, Boone, Greely and Garfield counties and on the west by the western boundary of Garfield, Valley, Sherman, Buffalo, Kearney and Franklin counties	3.31	3.38
(2) All of northeast Nebraska north of territory described in (1) and east of western boundary of Boyd and Holt counties	3.36	3.43
(3) Scotts Bluffs, Banner, Kimball, Box Butte, Morrill, Cheyenne and Deuel counties	3.34	3.41
(4) Remaining counties not included in (1), (2) and (3)	3.41	3.48
NEW HAMPSHIRE—		
Berlin	3.77	3.97
Concord	3.77	3.97
Franklin	3.77	3.97
Keene	3.77	3.97
Lebanon	3.77	3.97
Manchester	3.77	3.97
Nashua	3.77	3.97
Newport	3.77	3.97
Plymouth	3.77	3.97
Portsmouth	3.77	3.97
Rochester	3.77	3.97
NEW JERSEY—		
Atlantic City	3.78	3.98
Bloomfield	3.75	3.95
Camden	3.73	3.93
Elizabeth	3.75	3.95
Jersey City	3.75	3.95
Morristown	3.75	3.95
Newark	3.75	3.95
Paterson	3.75	3.95
Perth Amboy	3.75	3.95
Trenton	3.75	3.95
NEW MEXICO—		
Albuquerque	3.48	3.55
Bernalillo	3.48	3.55
Carlsbad	3.50	3.57
Clayton	3.38	3.45
Clovis	3.41	3.48
Deming	3.52	3.59
Fort Sumner	3.46	3.53
Gallup	3.59	3.66
Las Vegas	3.44	3.51
Lordsburg	3.59	3.66
Mosquero	3.48	3.55
Raton	3.34	3.41
Roswell	3.49	3.56
Santa Fe	3.48	3.55
Santa Rosa	3.48	3.55
Silver City	3.59	3.66
Socorro	3.48	3.55
Tucumcari	3.42	3.49
Vaughn	3.48	3.55
NEW YORK—		
Albany	3.74	3.94
Amsterdam	3.74	3.94
Auburn	3.72	3.92
Batavia	3.72	3.92
Binghamton	3.72	3.92
Brooklyn	3.75	3.95
Buffalo	3.70	3.90
Catskill	3.75	3.95
Corning	3.72	3.92
Cortland	3.72	3.92
Elmira	3.72	3.92
Geneva	3.72	3.92
Glens Falls	3.77	3.97
Hornell	3.72	3.92
Hudson	3.75	3.95
Ithaca	3.72	3.92
Jamestown	3.70	3.90
Johnstown	3.76	3.96
Kingston	3.75	3.95
Little Falls	3.74	3.94
Lockport	3.70	3.90
Malone	3.77	3.97
Mechanicsville	3.74	3.94
Middletown	3.75	3.95
Mount Morris	3.72	3.92
Newburgh	3.75	3.95
New York	3.75	3.95
Niagara Falls	3.70	3.90
Ogdensburg	3.75	3.95
Olean	3.72	3.92
Oneida	3.72	3.92
Oneonta	3.74	3.94
Oswego	3.72	3.92
Plattsburg	3.77	3.97
Poughkeepsie	3.75	3.95
Rochester	3.72	3.92
Rome	3.72	3.92
Salamanca	3.70	3.90
Saratoga Springs	3.77	3.97
Schenectady	3.74	3.94
Seneca Falls	3.72	3.92
Syracuse	3.72	3.92
Troy	3.74	3.94
Utica	3.72	3.92
Watertown	3.75	3.95
Yonkers	3.75	3.95
NORTH CAROLINA—		
Aberdeen	3.85	3.92
Ashboro	3.82	3.89
Asheville	3.78	3.85
Charlotte	3.83	3.90
Columbia	3.76	3.83
Durham	3.76	3.83
Elizabeth City	3.76	3.83
Fayetteville	3.85	3.92
Goldsboro	3.76	3.83
Greensboro	3.76	3.83
Greenville	3.76	3.83
La Grange	3.76	3.83
Mount Airy	3.85	3.92
Raleigh	3.76	3.83
Rocky Mount	3.76	3.83
Salisbury	3.82	3.89
Statesville	3.82	3.89
Wadesboro	3.85	3.92
Washington	3.76	3.83
Wilmington	3.85	3.92
Winston-Salem	3.76	3.83
OHIO—		
Akron	3.66	3.86
Alliance	3.68	3.88
Ansonia	3.63	3.83
Ashtabula	3.68	3.88
Athens	3.68	3.88
Bellaire	3.70	3.90
Bellefontaine	3.63	3.83
Bowerston	3.68	3.88
Bucyrus	3.64	3.84
Canton	3.66	3.86
Celina	3.63	3.83
Chillicothe	3.65	3.85
Cincinnati	3.63	3.83
Circleville	3.65	3.85
Cleveland	3.66	3.86
Columbus	3.64	3.84
Corning	3.68	3.88
Crestline	3.64	3.84
Dayton	3.63	3.83
Defiance	3.63	3.83
Delphos	3.63	3.83
Fostoria	3.64	3.84
Gallipolis	3.70	3.90
Ironton	3.68	3.88
Lancaster	3.64	3.84
Lima	3.63	3.83
Mansfield	3.64	3.84
Marion	3.64	3.84
Mount Vernon	3.64	3.84
Piqua	3.63	3.83
Portsmouth	3.68	3.88
Sandusky	3.64	3.84
Sidney	3.63	3.83
Springfield	3.63	3.83
Tiffin	3.64	3.84
Toledo	3.63	3.83
Urichsville	3.68	3.88
Van Wert	3.63	3.83
Xenia	3.65	3.85
Youngstown	3.68	3.88
Zanesville	3.68	3.88
OKLAHOMA—		
All points	3.32	3.39
PENNSYLVANIA—		
Allentown	3.73	3.93
Altoona	3.71	3.91
Bethlehem	3.73	3.93
Beaver Falls	3.70	3.90
Blairsville	3.71	3.91
Bradford	3.72	3.92
Brookville	3.72	3.92
Butler	3.70	3.90
Brownsville	3.71	3.91
Coatesville	3.73	3.93
Columbia	3.73	3.93
Connellsville	3.71	3.91
Corry	3.70	3.90
Easton	3.73	3.93
Erie	3.70	3.90
Franklin	3.70	3.90
Freeport	3.70	3.90
Greensburg	3.70	3.90
Hanover	3.72	3.92
Harrisburg	3.72	3.92
Hazelton	3.73	3.93
Indiana	3.71	3.91
Jamestown	3.68	3.88
Johnstown	3.71	3.91
Kittanning	3.70	3.90
Lancaster	3.73	3.93
Lock Haven	3.72	3.92
Mahanoy City	3.73	3.93
Meadville	3.70	3.90
Monongahela	3.70	3.90
Mount Carmel	3.73	3.93
Mount Jewett	3.72	3.92
Nanticoke	3.73	3.93
New Castle	3.68	3.88
Norristown	3.73	3.93
Oil City	3.70	3.90
Olyphant	3.73	3.93
Philadelphia	3.73	3.93
Phillipsburg	3.72	3.92
Pittsburgh	3.70	3.90
Pottstown	3.73	3.93
Plymouth	3.73	3.93
Reading	3.73	3.93
Scranton	3.73	3.93
Sharon	3.68	3.88
Shenandoah	3.73	3.93
Shamokin	3.73	3.93
Shippenburg	3.72	3.92
Sunbury	3.72	3.92
Titusville	3.70	3.90
Tyrone	3.71	3.91
Washington	3.70	3.90
Warren	3.70	3.90
Wilkes-Barre	3.73	3.93
Williamsport	3.72	3.92
York	3.72	3.92
RHODE ISLAND—		
Newport	3.77	3.97
Providence	3.77	3.97
Woonsocket	3.77	3.97
SOUTH CAROLINA—		
Abbeville	3.86	3.93
Aiken	3.88	3.95
Allendale	3.89	3.96
Anderson	3.86	3.93
Bennettsville	3.87	3.94
Blacksburg	3.82	3.89
Carlisle	3.85	3.92
Camden	3.86	3.93
Charleston	3.86	3.93
Cheraw	3.86	3.93
Clinton	3.85	3.92
Columbia	3.86	3.93
Darlington	3.87	3.94
Denmark	3.88	3.95
Florence	3.87	3.94
Georgetown	3.90	3.97
Greenville	3.83	3.90
Greenwood	3.86	3.93
Kingsville	3.87	3.94
Lancaster	3.84	3.91
Laurens	3.85	3.92
McCormick	3.86	3.93
Marion	3.88	3.95
Manning	3.86	3.93
Mullins	3.88	3.95
Newberry	3.86	3.93
Russellville	3.91	3.98
Spartanburg	3.82	3.89
Sumter	3.86	3.93
Union	3.84	3.91
York	3.83	3.90
TENNESSEE—		
Athens	3.79	3.86
Bells	3.56	3.63
Bristol	3.78	3.85
Chattanooga	3.77	3.84
Clarksville	3.68	3.75
Cleveland	3.79	3.86
Columbia	3.73	3.80
Dayton	3.75	3.82
Dyersburg	3.56	3.63

FAMILY FLOUR PRICE CEILINGS

Plain and Enriched Flour per 100 Lbs

State—	Plain	Enriched	State—	Plain	Enriched
Alabama	$5.18	$5.35	Montana	$3.83	$4.00
Arizona	4.21	4.38	Nebraska	3.95	4.12
Arkansas	4.34	4.51	Nevada	4.46	4.63
California	4.72	4.89	New Hampshire	4.64	4.81
Colorado (west)	3.95	4.12	New Jersey	4.62	4.79
Colorado (east)	3.70	3.87	New Mexico	3.95	4.12
Connecticut	4.64	4.81	New York	4.62	4.79
Delaware	4.59	4.76	North Carolina	5.23	5.40
District of Columbia	4.59	4.76	North Dakota	3.95	4.12
Florida	5.00	5.17	Ohio	4.49	4.66
Georgia	5.18	5.35	Oklahoma	4.21	4.38
Idaho	4.13	4.30	Oregon	4.08	4.25
Illinois	4.39	4.56	Pennsylvania	4.59	4.76
Indiana	4.44	4.61	Rhode Island	4.64	4.81
Iowa	4.29	4.46	South Carolina	5.18	5.35
Kansas	3.95	4.12	South Dakota	3.95	4.12
Kentucky	5.00	5.17	Tennessee	5.13	5.30
Louisiana	5.00	5.17	Texas	4.31	4.48
Maine	4.64	4.81	Utah	4.21	4.38
Maryland	4.59	4.76	Vermont	4.64	4.81
Massachusets	4.64	4.81	Virginia	5.00	5.17
Michigan	4.49	4.66	Washington	4.08	4.25
Minnesota	4.34	4.51	West Virginia	4.59	4.76
Mississippi	5.18	5.35	Wisconsin	4.44	4.61
Missouri	4.29	4.46	Wyoming	3.83	4.00

Prices are for carloads delivered at any point in the state and are for flour packed in 100-lb cottons. Following is a table of differentials that apply for other circumstances:

DIFFERENTIALS

	Per cwt
Enriched flour over plain	17c
Enriched flour, plus optional enriching ingredients	27c
Self-rising flour over plain	13c
Mixed and pool cars: f.o.b. team or industry track at destination	5c
L.c.l.—250 cwts or less—	
f.o.b. mill or sellers' warehouse:	
Class A cities	25c
Class B cities	20c
All other areas	18c
Delivered to buyer:	
Class A cities	50c
Class B cities	43c
All other areas	33c

Note.—Class A cities are the metropolitan areas (as defined in the 16th Census) of New York and northeastern New Jersey, Philadelphia and Chicago. Class B cities are the metropolitan areas of San Francisco, Milwaukee, New Orleans, Detroit, Cleveland, Baltimore, St. Louis, Boston, Pittsburgh, Cincinnati and Washington, D. C.

Retail sales by millers or blenders.....64c

Small sized packages. (See package differentials.)

FAMILY CASE GOODS
(Enriched and unenriched)

Family cake flour and family whole wheat flour:

2¾-lb packages (12 per case).....$2.75 case

1¼-lb packages (24 per case)..... 2.75 case

Other packages of 5 lbs or less.....7 1-3c lb*

*Plus cost of packages, labels and shipping containers.

Family farina:

28-oz packages (18 to case)—

Car lots $3.47½ case; l.c.l., $3.55 case.

14-oz packages (24 to case)—

Car lots, $2.70 per case; l.c.l. $2.75 per case.

Other packages of 5 lbs or less, 9¾c lb, plus cost of packages, labels and shipping containers.

TENNESSEE—Continued		
Fayetteville	3.76	3.83
Franklin	3.72	3.79
Gallatin	3.68	3.75
Harriman	3.75	3.82
Humboldt	3.56	3.63
Johnson City	3.78	3.85
Knoxville	3.75	3.82
Lawrenceburg	3.73	3.80
Lebanon	3.73	3.80
Lexington	3.56	3.63
McKenzie	3.56	3.63
McMinnville	3.77	3.84
Martin	3.76	3.83
Memphis	3.51	3.58
Maryville	3.76	3.83
Middleton	3.60	3.67
Nashville	3.68	3.75
Paris	3.56	3.63
Pulaski	3.76	3.83
Wartrace	3.75	3.82

TEXAS—		
Abilene	3.39	3.46
Amarillo	3.33	3.40
Austin	3.42	3.49
Brenham	3.42	3.49
Dalhart	3.39	3.46
Dallas	3.35	3.42
Denison	3.35	3.42
El Paso	3.50	3.57
Fort Worth	3.35	3.42
Gainesville	3.35	3.42
Galveston	3.42	3.49
Houston	3.42	3.49
Lubbock	3.37	3.44
Marshall	3.35	3.42
Paris	3.35	3.42
San Antonio	3.42	3.49
Sherman	3.35	3.42
Sweetwater	3.39	3.46
Waco	3.39	3.46
Whitewright	3.35	3.42
Wichita Falls	3.32	3.39
Wolfe City	3.35	3.42
VERMONT—		
Brattleboro	3.77	3.97
Burlington	3.77	3.97
Concord	3.77	3.97
Montpelier	3.77	3.97
Rutland	3.77	3.97
St. Johnsbury	3.77	3.97
VIRGINIA—		
Culpepper	3.72	3.92
Danville	3.73	3.80
Emporia	3.73	3.80
Harrisonburg	3.72	3.92
Lynchburg	3.72	3.92
Norfolk	3.72	3.92
Petersburg	3.72	3.92
Richmond	3.72	3.92
Roanoke	3.72	3.92
Suffolk	3.72	3.92
WEST VIRGINIA—		
Charleston	3.70	3.90
Clarksburg	3.71	3.91
Elkins	3.71	3.91
Grafton	3.71	3.91
Huntington	3.70	3.90
Parkersburg	3.70	3.90
Phillipi	3.71	3.91
Wheeling	3.70	3.90
WISCONSIN—		
Ashland	3.45	3.65
Appleton	3.47	3.67
Chippewa Falls	3.42	3.62
Eagle River	3.50	3.70
Fond du Lac	3.47	3.67
Green Bay	3.47	3.67
Janesville	3.47	3.67
Kenosha	3.47	3.67
Kewaunee	3.47	3.67
Ladysmith	3.43	3.63
Madison	3.47	3.67
Manitowoc	3.47	3.67
Marinette	3.50	3.70
Milwaukee	3.47	3.67
Oshkosh	3.47	3.67
Portage	3.47	3.67
Racine	3.47	3.67
Rhinelander	3.47	3.67
Sheboygan	3.47	3.67
Waukesha	3.47	3.67
Wausau	3.46	3.66
Wisconsin Rapids	3.46	3.66

MOSTLY PERSONAL

HOSPITALIZED

John H. Crawford, Hawks Flour Co., Augusta, Ga., and his daughter were injured in an automobile accident Nov. 27, near Charleston, S. C. Both Mr. Crawford and his daughter are confined in University hospital, Augusta, where they are reported to be recovering. Mr. Crawford's injuries were not so serious, but his daughter was considered in a serious condition.

VACATION OVER

Freddie L. McCarary, vice president of the Globe Mills, Augusta, Ga., has returned from a vacation to Florida and other parts of the South.

FLYING VISIT

Alexander Mackie, Jr., of the Milledgeville Milling Co., Augusta, Ga., made a flying trip to Camp Rucker, Ala., recently, visiting his son who is stationed there.

GOOD HUNTING

Henry Klepper, who for 30 years has represented the Commander-Larabee Milling Co. in Wisconsin, returned from a hunting trip this year with his buck as usual. He has bagged 8 bucks in 15 years at his favorite hunting spot in northern Wisconsin.

CHICAGO CALLS

Recent visitors in Chicago were: F. E. Roth, Gooch Milling & Elevator Co., Lincoln, Neb; Dr. W. H. Strowd, National Soft Wheat Millers Association, Nashville, Tenn; Lt. W. S. Allen, Jr., Fisher Flouring Mills Co., Seattle, Wash; C. D. McKenzie, McKenzie Milling Co., Quincy, Mich; and D. S. Jackman, Kansas Milling Co., Wichita, Kansas.

TO HOME OFFICE

William E. Derrick, regional vice president at New York, for the Pillsbury Flour Mills Co., Minneapolis, is on a business trip to the home office.

HERE AND THERE

Frank H. Sherrill, Rochester, N. Y., up-state representative for David Coleman, Inc., spent several days recently at the company's New York offices. David Coleman, principal of the firm, has been in Washington during the week.

MARKING TIME

Bakers generally were marking time pending new government regulations, reports Fred N. Burrall, general sales supervisor for the William Kelly Milling Co., Hutchinson, Kansas, home from a three weeks' visit with connections in central and eastern states. Bakers are enjoying big business, he found.

ON BUDGET DRIVE

J. S. Hargett, Oklahoma City, president of the southwestern division of General Mills, Inc., has been named member of the committee of the Oklahoma City Chamber of Commerce 1944 budget drive.

REUNION

William D. Borries, son of Fred Borries, president, Ballard & Ballard Co., Inc., Louisville, has returned to the company's branch office at Montgomery, Ala., while J. Glen Bywater, son-in-law of Mr. Borries, has returned to the New Orleans office, after a family reunion in Louisville, Thanksgiving day, which was also attended by Lt. Com. Fred Borries, Jr., U. S. Navy, who returned to his station at Jacksonville, Fla. Mr. and Mrs. Borries recently returned to Louisville after a vacation in their Florida home on Sandibel Island, off Fort Myers.

IN GOTHAM

Henry W. Newton, City Flouring Mills, Lebanon, Pa., was introduced on the New York Produce Exchange by A. J. MacNair, of H. J. Greenbank & Co.

BUSINESS IN NASHVILLE

Lloyd Churchill, district sales manager of the Thomas Page Mill Co., Topeka, Kansas, visited in Nashville recently, calling on the local bakers.

IN KANSAS CITY

King P. Aitken, vice president of the Alva (Okla.) Roller Mills, was a Kansas City visitor recently.

HEADING SOUTH

Otto H. Bresky, head of the Seaboard Allied Milling Co., Boston, and Mrs. Bresky have left for their winter home near Miami, Fla. They expect to be away until next spring.

WITH THE ARMED SERVICES

TRIBUTE—PRAYER

The New York Produce Exchange is joining with many of the other stock and commodity exchanges of the country in a one-minute silence at 11 a. m. each trading day in tribute to the service men and women of the country and in prayer for an honorable and lasting peace. When the gong sounds all activity is suspended and there are few men on the floor for whom the ceremony does not have an intimate personal concern.

★

Tech. Sgt. Ernest Piper, a checker at the Buffalo plant of the Larabee Flour Mills Co. before enlisting in the army air force, was a gunner on one of the bombers which bombed the Rumanian Oil Refineries on Aug. 1. Brigadier General U. G. Ent, commanding officer of the IX Bomber Command, has written to Sgt. Piper's sister telling her that her brother has been recommended for an award for his bravery.

★

Naval Aviation Cadet Bernard Evers, Jr., returned recently to his station at Olathe, Kansas, after spending a week with his parents, Mr. and Mrs. Bernard Evers. Mr. Evers is president and general manager of the American Bread Co., Nashville.

★

J. R. Matthews, chairman of the board of the National Oats Co., St. Louis, has received word that his son, Lt. F. M. Matthews is missing in action. He was a bombardier and navigator on a B-26 (Maurauder) and is missing from a mission over occupied France. Lt. Matthews enlisted in October 1940.

OBITUARY

CHARLES G. SIMON

Charles G. Simon, 81, former president of the Great Western Feed Co., died after a short illness, Dec. 5. He was a member of the St. Louis Merchants Exchange for 40 years before he retired. He is survived by his widow and daughter, Mrs. Fred W. Kreiger.

HERMAN SPIELFOGEL

Herman Spielfogel, of Steinberg & Spielfogel, large flour distributors in the New Jersey area, died recently of a heart attack, at the age of 50.

——BREAD IS THE STAFF OF LIFE——

KANSAS OUTLOOK IS DISCOURAGING

DODGE CITY, KANSAS.—There are areas in the western half of Kansas that have not received any precipitation of consequence since harvest, and in only small areas over the large wheat belt of the western two thirds of Kansas has there been sufficient precipitation to add anything to the meager subsoil moisture supply. "It is too early to kill the 1944 wheat crop," J. E. Moyer, secretary of the Kansas Grain, Feed and Seed Dealers Association, said in his monthly bulletin, "but conditions to date have resulted in a poor foundation for a wheat crop next year so far as the big wheat plains country is concerned."

——BREAD IS THE STAFF OF LIFE——

MAX BATES SETS UP BUSINESS

KANSAS CITY, MO.—Max Bates, who for the last year has handled coarse grain merchandising for E. L. Rickel, Kansas City grain firm, is leaving that firm to establish his own company. Mr. Bates' company will have its office on the 14th floor of the board of trade, and will begin its operations on or before Jan. 1. Mr. Bates has been identified with the grain industries in the middle west for more than 20 years.

——BREAD IS THE STAFF OF LIFE——

FREDERICK STADELHOFER, FLEISCHMANN MAN, DIES

Frederick C. Stadelhofer, retired bakery consultant of Standard Brands, Inc., died at his home in Berkeley, Cal., Nov. 19 at the age of 74. On Oct. 9, 1908, Mr. Stadelhofer entered the employ of the American Diamalt Co., and when this company subsequently merged with The Fleischmann Co., he remained to carry on his work. Until his retirement on June 1, 1933, "Pop," as he was affectionately known to his many friends, was one of the best known bakery consultants in the Fleischmann organization. He traveled the country assisting bakers with their production problems, and was noted for his technical knowledge. He was a member of the American Society of Bakery Engineers.

——BREAD IS THE STAFF OF LIFE——

JULIUS GOLMAN, LEADING TEXAS BAKER, IS DEAD

DALLAS, TEXAS.—Julius Golman, who as an immigrant Russian youth, came to America in 1912 and earned prominence in the baking industry and in Dallas civic affairs, died Nov. 23, at a Dallas hospital.

Mr. Golman was president of the Golman Baking Co., which he founded in 1930. He served as president of the Texas Bakers Association, after a number of years as a director of that organization. His years of effort to advance the baking industry were recognized by his election to the board of governors of the American Bakers Association, an office he held for nine years.

Born at Zablin, Russia, Mr. Golman landed at Galveston in 1912 and went to Dallas to work for the Schepps Baking Co. where his brother, Jake Golman, was already employed.

The Late Julius Golman

In 1921 the brothers bought the Adolphus Baking Co. and Julius Golman remained there as manager until the establishment of the Golman Baking Co. He was also treasurer of the Oak Cliff Baking Co., of which Jake Golman is president.

His associates in business and civic affairs recount his unceasing work as a member of a number of Dallas civic and service clubs.

——BREAD IS THE STAFF OF LIFE——

ENTOLETER SALES REPRESENTATIVE

NEW YORK, N. Y.—Hill Shepardson, of Minneapolis, Minn., has been appointed sales representative in the Northwest for the Entoleter division of the Safety Car Heating & Lighting Co. Mr. Shepardson will handle sales of the Entoleter infestation destroyer in addition to his other lines of flour mill machinery and equipment. He will continue in his present status with Haaky Mfg. Co., The Day Co., and Richmond Mfg. Co.

——BREAD IS THE STAFF OF LIFE——

J. E. BABBITT APPOINTED RECEIVER

CHICAGO, ILL.—J. E. Babbitt, local flour broker, has been appointed receiver for the North Shore Flour Co., Evanston, Ill. Schultz-Baujan & Co., Beardstown, Ill., petitioned that a receiver be appointed to liquidate the assets of this company, operated by J. M. Farrow. A hearing was held on Nov. 24 in the chambers of J. A. Graber, judge of the Superior Court of Cook County, who appointed Mr. Babbitt receiver.

——BREAD IS THE STAFF OF LIFE——

DISTRICT 1 PROGRAM SET

WICHITA, KANSAS.—A meeting of District 1, Association of Operative Millers, will be held here Jan. 8, 1944. Following a luncheon at the Lassen Hotel, the following program will be presented:

"Manpower and Milling Industry," by Charles W. Corsaut, district manager, United States Employment Service.

"Co-operation Between Office and Mill," by Grant E. Morris, manager, Newton (Kansas) Milling & Elevator Co.

"Arithmetic Mean via Mean Arithmetic," by Elmer Modeer, director, St. Joseph (Mo.) Testing Laboratory.

"Roll Corrugations," by Huston Boyd, superintendent, K. B. R. Milling Co., McPherson, Kansas.

"Constructive Programs for District Meetings," by W. E. McCraith, national secretary, Association of Operative Millers.

"Experimental Milling," by Arthur Gust, chemist, Stanard-Tilton division of the Russell-Miller Milling Co., Dallas, Texas.

——BREAD IS THE STAFF OF LIFE——

The "Sowing Circle" Chooses a New Name

CHICAGO, ILL.—A group of 14 commercially sponsored grain improvement associations, formerly known as the Sowing Circle, met in Chicago coincident with the International Hay and Grain Show and adopted the name of the Crop-Industry Development Association of North America. C. E. Skiver, in charge of wheat improvement work for Igleheart Bros., Evansville, Ind., was elected president, and Dr. John H. Parker, director of the Kansas Wheat Improvement Association, Manhattan, was elected vice president. H. O. Putnam, Northwest Crop Improvement Association, Minneapolis, Minn., is the secretary.

Dr. Parker also attended meetings of the International Crop Improvement Association and of county agricultural agents. He distributed samples of Comanche wheat to the county agents. The variety was recently introduced in the hard winter wheat region. Dr. Parker described it as a "good Indian from Kansas" and said that it is a high-yielding, good quality wheat, well adapted for production in western Kansas, Oklahoma and Texas.

★ HERE IS PROOF OF GOOD HUNTING ★

Here is evidence, supplied by O. J. Olson, superintendent of the Redfield (S. D.) Co-operative Mills, that pheasant hunting in South Dakota was good this fall. "The birds were so numerous that it was easy to bag the limit in a short time," Mr. Olson said. There are 42 pheasants in the picture.

The men were guests of the Redfield Co-operative Mills, and enjoyed a three-day hunt in Spink County, S. D. The men, from left to right, are: L. H. Patten, manager, Farmers & Merchants Milling Co., Glencoe, Minn; R. E. Bemmels, Chicago, Ill., Bemmels & Vaughn Flour Co; Mr. Olson; J. J. Lessman, secretary, Farmers & Merchants Milling Co., Glencoe, Minn; L. S. Bressler, Chicago, Ill., manager, Boysen Baking Co; O. D. Olson, flour salesman, Redfield Co-operative Mills.

MARKETS IN DETAIL

U. S. FLOUR MARKETS

THE SOUTHWEST

Kansas City: Sales started immediately after subsidy went into effect but not with burst of activity some expected. Since mills must move cautiously in these times, efforts to sell have been modest. Sales reached 80% of capacity last week, with government business thrown in, as compared with 6% the previous week and 52% a year ago. Sales almost without exception at ceiling levels. Mills unable to offer at less because of costs, and only in cases where cheaper grades of wheat or stuffing is possible are prices made at lower level.

Bakers not particularly anxious to make big bookings. Most are of opinion that they always will be able to buy at these prices. Moreover, millers not anxious to sell too far ahead as program may be stopped and all flour might not then get in under the subsidy terms.

Activity better than normal; clear grades strong, fair demand, supplies not easy to find.

Quotations Dec. 4: established brands family flour $4.10@4.20, bakers short patent $3.41, standard patent $3.36, straight grade $3.31, first clears $2.90@3, second clear $2.70@2.80, low grade $2.65@2.75.

Eight mills report domestic business active, 10 fair, 1 quiet, 2 slow and 2 dull.

Oklahoma City: Definite improvement in sales, which averaged 80%, compared to 23% previous week. Bakers took approximately 70% of bookings and family trade 30%. Operations improved, averaging 85%, compared to 73% previous week. Prices stable, unchanged to 15c higher per cwt. Quotations Dec. 4: hard wheat short patent flour $4.05@4.66, soft wheat short patent $4.05@4.66, standard patent $3.95@4.46, bakers short patent $3.75, bakers standard $3.65.

Omaha: Sales much larger; mills booked 75-200% of capacity, mostly bakery flour. Shipping directions on former sales fair to good. Quotations Dec. 4, car lot ceiling prices: family fancy short patent $4.06, standard patent $3.62, bakers short patent $3.41, standard patent $3.31. Flour prices generally lower.

Wichita: Sales very light; directions good; improvement in sales expected.

Hutchinson: Announcement of subsidy rates injected new life into trade, but no rush to buy developed. Bookings usually by bakers caught short by prolonged squeeze and nearing end of contracts. New contracts mostly of moderate sizes. Shipping directions pressing.

Salina: Demand very good; shipping directions quite satisfactory.

Texas: Inauguration of subsidy program and advance in ceiling on bakers flour, permitting business in that line, resulted in good sales volume. Late November and early December averaged 100% of capacity, with increase practically all on bakers. Family remains dull. Shipping directions easing off. Operations off possibly 10 to 75% or 80% of capacity. Family prices about unchanged. Bakers advanced to new ceiling. Clears up about 10c. Quotations Dec. 3: family 50's, extra high patent $4.40@4.45, high patent $4.15@4.20; standard bakers 100's, 44% ash or less, $3.52 (ceiling); first clears, 100's $3.10@3.15, delivered Texas common points or group 3.

THE NORTHWEST

Minneapolis: Pent-up flour demand, long forestalled by the price squeeze, came out with a rush when mills began selling under subsidy plan last midweek. Sales for period averaged about 218% of capacity, compared with 12% last week and 185% a year ago. After initial rush, both mills' desire to sell and buying interest fell off and currently only moderate business being done.

Practically all business done at ceiling prices and many millers say they have never known a time when price was less of a consideration in a flour sale. Demand appeared both from buyers who already had substantial bookings as well as from those who were in immediate need of flour. Those with good bookings predominated about three to one. Apparently the average flour buyer, particularly in the baking industry, feels that wartime uncertainties justify a heavy backlog of flour contracts.

Millers figure that they cannot sell more than their December grind and should not be carrying more than 120 days' unfilled orders in case the subsidy should be terminated. On that basis about half December's sales have been made by spring wheat mills which seemed to have some leeway in their unfilled orders on Dec. 1.

A substantial part of last week's sales consisted of government business under lend-lease which totaled around 800,000 sacks. But the bulk of the trade was with bakers and sales were generally in medium-sized lots and widely scattered. There was exceptionally good interest from the northeastern states. No large lots were booked and the bigger bakers appear not interested.

High glutens sold in considerable volume. Although return to millers on this type of business is less than normal because of inadequate price ceiling differentials, there had been so little high gluten flour sold for such a long time that mills felt obliged to take care of customers regardless, at least to the extent of a flour type that they can use.

There was no big demand for clear, but most mills seem to have considerable clear sold and there is no pressure to sell. Some mills would be more interested in buying. Top grades are at full ceiling prices and other grades are selling close to the ceiling. Recent government purchases of higher ash flours have strengthened the clear market everywhere.

Shipping directions continue good and production recovered from the previous week's modest slump to reach a point in excess of rated capacity.

Quotations Dec. 7: established brands family flour $4@4.20, high gluten bakery flours $3.54, bakery short patent $3.44, first patent $3.39@3.44, standard patent $3.34, fancy clear $3.35@3.44, first clear $3@3.34, second clear $2.80@2.95, whole wheat $3.54.

THE CENTRAL WEST

Chicago: Anticipated improvement in demand following announcement of subsidy program did not materialize. Business confined to scattered sales of one to three car lots. Buyers not interested in adding to their holdings. Directions continue active. Family demand failed to improve; sales negligible. Deliveries fair. Quotations Dec. 4: spring top patent $3.44@3.57, standard patent $3.34@3.47, first clear $3.27@3.54, second clear $2, family flour $4.56; hard winter short patent $3.44@3.57, 95% patent $3.34@3.47, first clear $3.06@3.54, soft winter short patent $4.41@4.72, standard patent $3.50@4.21, first clear $3.50@3.60.

St. Louis: Mills report improvement in buying by baker and family trade; several large round lots placed on books for 30 to 120 days' shipment. Car lot orders show increase. Good demand for hard and soft wheat clears. Price range holds firm. Some jobbers report business better, others report no improvement. Specifications good. Quotations Dec. 4: soft wheat bakers patent (ceiling price) $3.98, cake flour $4.58, straight $3.74, family soft wheat short patent $4.29, straight and 95% $4.29, first clear $3.32@3.75; hard wheat bakers patent (ceiling price) $3.53, family short patent $3.68@3.94, straight and 95% $3.43, first clear $2.68@3.06; spring wheat bakers short patent $3.53, straight $3.43.

Toledo: No outstanding effect from extension of subsidies. Some confusion exists, operations continue much as before on restricted basis. Millers worried about soft wheat supplies. Amount of soft wheat back in country, available to mill, of limited and uncertain quantity, almost no No. 2 red.

EASTERN STATES

Buffalo: Heavy sales followed subsidy measure. These sales made to part of trade which was unable to buy on account of squeeze. Increased directions and record Christmas trade appear to be certain. Clear prices down about 10c. Heavy sales ensued at lower level. Directions continue unusually good. Foreign trade uneventful.

Quotations Dec. 4: spring first patent $3.80, spring standard patent $3.70, spring first clear $3.60, hard winter short patent $3.80, hard winter 95% patent $3.70, hard winter first clear $3.55, soft winter short patent $4.13, soft winter straights $4.08.

New York: Fair to good buying followed long awaited placement of subsidies, as brokers again able to offer flour. Immediately on heels of announcement practically all buyers came in for limited replenishment. Jobbers have been heaviest takers. Many car lot bakers have also purchased moderately, although some, skeptical of prices, are holding off. Chain bakers not actively interested.

Spring high glutens heaviest sellers among spring wheats at the ceilings, but Kansas grades about 10c below, Texas flours hold high. Standard patents offered about 5c below ceilings. Clears command little interest; southwesterns offered sparingly. Cake grade situation so confusing that mills have practically withdrawn, including those on West Coast which have been in market.

Quotations Dec. 3: spring high glutens $3.95, standard patents $3.70@3.75, clears $3.70@3.75, Kansas high glutens $3.75@3.83, standard patents $3.70@3.74.

Boston: Announcement of subsidy program resulted in moderate amount of new business. Mill agents offered all types of flour to trade, mild flurry of buying developed. Numerous inquiries indicate renewed buyer interest, sales to medium and small buyers, especially bakers, fairly heavy. Few venture to take on more than 30 days' supply; mills not anxious to go beyond that point. Mills more interested in offering bread patents since soft winter flours rated at 5½c bu and sellers do not offer them too freely. Large bakers not in market to any extent. Family flour sales dull. Directions steady. Quotations Dec. 4: spring high glutens $3.94@3.97, short patent $3.84@3.87, standard patent $3.74@3.77, first clear $3.64@3.67; southwestern short patent $3.84@3.87, standard patent $3.74@3.77; Texas short patent $3.84@3.87, standard patent $3.74@3.77; soft winter patent $4.20@4.22, straights $4.12@4.20, clears $4.02@4.05.

Philadelphia: Undertone firm. Moderate business accomplished, mostly in a small way. Jobbers and bakers cautious, operating only as impelled by immediate needs. Quotations Dec. 4: spring wheat short patent $3.88, standard patent $3.78, hard winter short patent $3.88, 95% $3.78.

THE SOUTH

New Orleans: Market feverishly active following announcement of subsidy plan. Although volume of business larger than in previous weeks, still not as good as expected after prolonged period of inactivity. Buyers cautious in amounts contracted for during 120-day shipping period due to sellers insisting upon protection in event of subsidy ending and flour not delivered. Most business in southwestern hard wheat flours to baking and jobbing trades. Limited business in northern spring wheat flours and Pacific Coast and midwestern soft wheat flours. Shipping directions good. Bread, cake, cracker and macaroni production good.

Quotations Dec. 4: hard spring wheat family patent $3.64, standard patent $3.44, fancy clear $3.30, first clear $3.25, second clear $3.15; hard winter wheat family patent $3.75, bakers short patent $3.60, 95% $3.50, first clear $3.30; soft wheat short patent $4.40@4.80, straight $3.90@4.10, first clear $3.50@3.70.

Nashville: Business very slow. Subsidy program still confusing. Buyers have moderate stocks, waiting clarification of meaning of subsidy program. Some mills reduced prices 20@30c per cwt Dec. 1, some held prices unchanged, while others refused to even make quotations. Blenders indicate buyers are waiting. Shipping specifications fairly good. Bakers' business unusually good. Fruit cakes still in big demand.

Prices unchanged. Quotations Dec. 4: soft winter wheat family short patent $5.05@5.15, standard patent $4.85@5.05, straight $4.70@4.85, clears $4.50@4.70, hard winter wheat short patent $4.70@4.90, standard patent $4.50@4.70, soft winter high patent pastry flour $4.95@5.15.

PACIFIC COAST

Seattle: Markets unchanged, mills marking time and studying terms of subsidy; no business booked. Terminal mills booked so far ahead they cannot take advantage of subsidy due to 120-day delivery clause. Meantime mills working out old orders, awaiting developments.

Portland: Confusion among mills with announcement of subsidy program. New bookings negligible. At close of last week FDA announced purchase of 15,000 bbls bakers enriched flour and 10,000 tons export straights, bookings made with two mills. These bookings in addition to previous announcement to book 80,000,000 lbs with mills of the Pacific Northwest.

Interior mills shut out of Middle West and southeastern markets as a result of withdrawal of higher ceiling level. Virtually no prices quoted because of confusion.

GRAIN FUTURES—CLOSING PRICES

Closing prices of grain futures at leading option markets, in cents per bushel:

WHEAT

	Minneapolis		Chicago		Kansas City		Seattle		Duluth	
	Dec.	May	Dec.	May	Dec.	May	Dec.	May	Dec.	May
Dec. 1	156¾	154½	164¾	162¼	156⅞	154⅝	144	....	153⅛	152¼
Dec. 2	157⅜	154⅝	165½	162¼	157⅝	154⅞	144	....	153⅞	152⅝
Dec. 3	157⅝	154⅝	166½	162⅝	158¼	155⅝	144	....	153⅞	152⅜
Dec. 4	157¾	154⅜	166½	163	158¼	155½	144	....	153⅜	151
Dec. 6	158¾	156	168⅜	164½	158⅞	156½	144	....	154	153¼
Dec. 7	159½	156⅝	168½	164½	158⅞	156¼	...	....	155	154

	CORN						OATS			
	Minneapolis		Chicago		Kansas City		Chicago		Minneapolis	
	Dec.	May	Dec.	May	Dec.	May	Dec.	May	Dec.	May
Dec. 1	....	....	....	....	....	....	77½	73	75½	70
Dec. 2	....	....	....	....	....	....	78	73¼	76⅛	70⅛
Dec. 3	....	....	....	....	....	....	77¾	73⅛	75⅝	69⅞
Dec. 4	....	....	....	....	....	....	78⅞	73⅝	75⅞	70⅛
Dec. 6	....	....	....	....	....	....	81⅞	77	78⅞	73⅜
Dec. 7	....	....	....	....	....	....	81⅝	77	79	75

	RYE				FLAXSEED				BARLEY
	Chicago		Minneapolis		Minneapolis		Duluth		Minneapolis
	Dec.	May	Dec.	May	Dec.	May	Dec.	May	Dec.	May
Dec. 1	116½	116½	110⅝	110⅝	302	301½	302	....	111	107¼
Dec. 2	115¼	116	111¼	110½	302	300⅜	302	....	111½	107¼
Dec. 3	115¼	116¼	111¼	110½	301½	300½	301½	....	111½	107½
Dec. 4	116⅝	115¼	111¼	110⅝	302½	300⅜	302½	....	112¼	108
Dec. 6	118¼	119½	114½	113½	303	301	303	....	114½	111¼
Dec. 7	118⅝	119¼	115¼	113⅞	303	301	303	....	115¼	112

CANADIAN MARKETS

Toronto-Montreal: Spring wheat mills operating to capacity. Many Ontario mills formerly grinding only winters produce springs, but more capacity could be employed if available. Supplies of domestic flour none too plentiful; mills behind with orders owing to pressure of export demand. No further booking of consequence last week, but mills have enough business on hand to keep capacities fully engaged until end of March. Orders for United Kingdom and West Indies quite heavy. Flour at ceiling in domestic market; for export to United Kingdom price is stable.

Quotations Dec. 4: domestic top patent $5.05 bbl, seconds $4.40, bakers $4.30, in 98's, jute, mixed cars, track, Toronto-Montreal freights; add 10c extra where cartage is performed. For export price is $5.35 bbl, per 280 lbs, f.a.s. winter ports, February seaboard, $5.40 March-April.

Demand for winter wheat flour strong with only meager supplies available. Production in first three months of crop year ending October less than half that of same months last year. Output below requirements of domestic biscuit and pastry trades. many bakers compelled to use springs.

A SUMMARY OF FLOUR QUOTATIONS IN LEADING MARKETS

Week-end flour quotations, per sack, packed in 100 lbs. (Canadian quotations per bbl of 196 lbs). All quotations on basis of carload lots, prompt delivery.

	Chicago	Minneapolis	Kansas City	St. Louis	Buffalo	New York	Baltimore	Philadelphia	Boston	Cincinnati	†Nashville
Spring first patent	$3.44@ 3.57	$....@ 3.44	$....@....	$....@ 3.58	$....@ 3.80	$....@ 3.95	$....@....	$....@ 3.88	$3.84@ 3.87	$....@....	$....@....
Spring standard patent	3.34@ 3.47	3.39@ 3.44	....@....	....@ 3.43	....@ 3.70	3.70@ 3.75	....@....	....@ 3.78	3.74@ 3.77	....@....	....@....
Spring first clear	3.27@ 3.54	3.00@ 3.34	....@....	....@....	....@ 3.60	3.70@ 3.75	....@....	....@....	3.64@ 3.67	....@....	....@....
Hard winter short patent	3.44@ 3.57	....@....	....@....	....@ 3.53	....@ 3.80	3.75@ 3.83	....@....	....@ 3.88	3.84@ 3.87	4.70@ 4.90	
Hard winter 95% patent	3.34@ 3.47	....@....	....@....	....@ 3.43	....@ 3.70	3.70@ 3.74	....@....	....@ 3.78	3.74@ 3.77	4.50@ 4.70	
Hard winter first clear	3.06@ 3.54	....@....	....@....	2.68@ 3.06	....@ 3.55	....@....	....@....	....@....	....@....	....@....	
Soft winter short patent	4.41@ 4.72	....@....	....@....	....@ 3.98	....@ 4.13	....@....	....@....	....@....	4.20@ 4.22	....@....	5.05@ 5.15
Soft winter straight	3.50@ 4.21	....@....	....@....	....@ 3.74	....@ 4.08	....@....	....@....	....@....	4.12@ 4.20	....@....	4.85@ 5.05
Soft winter first clear	3.50@ 3.60	....@....	....@....	3.32@ 3.75	....@....	....@....	....@....	....@....	4.02@ 4.05	....@....	4.50@ 4.70
Rye flour, white	3.15@ 3.41	3.37@ 3.47	....@....	....@ 3.68	....@ 3.60	3.42@ 3.50	....@....	3.43@ 3.54	....@....	....@....	....@....
Rye flour, dark	2.80@ 3.05	3.12@ 3.17	....@....	....@ 3.38	....@ 3.30	....@....	....@....	....@....	....@....	....@....	....@....

	Seattle (98's)	S. Francisco	Standard patent— Seattle	San Francisco
Dakota			$....@....	$....@....
Montana			....@....	....@....
Family patent	$....@3.98	$....@....		

	Toronto	**Winnipeg
Spring top patent‡	$....@5.05	$....@5.30
Spring second pat.‡	....@4.40	....@4.80
Spring first clear‡	....@3.30	....@....
Spring exports‡		$9.35
Ontario 90% patents‡		$5.60

	Toronto	**Winnipeg
Spring exports‡		$9.35
Ontario 90% patents‡		$5.60

*Includes near-by straights. †Nashville prices basis f.o.b. Ohio River points for soft winter wheat flour. **In cottons, Fort William basis. ‡Second-hand cottons. ¶98-lb jutes. §280-lb cottons.

Prices unchanged. Quotations Dec. 4: $5.60 bbl, in second-hand jutes, Montreal freights.

Ontario winter wheat not coming out. Crop below normal, but sufficient milling quality grain for domestic flour requirements available if farmers would market wheat. However, they are holding it for feed or in hope of getting higher prices. Quotations Dec. 4: ceiling $1.10@1.12 bu, f.o.b. shipping points, according to freights.

Winnipeg: No new export business, but no let-up in mill operations. Domestic trade good, and, coupled with export orders on hand, mills booked up into March and April. Mills still in cash wheat market for large supplies to complete boat space, for unload or winter storage. With all available cars pushed into movement of grain from country points to Canadian lakehead, supplies still short of requirements to fill boat space. Quotations Dec. 4: top patent springs for delivery between Fort William and the British Columbia boundary, $5.30, cottons; seconds, $4.80; second patents to bakers, $4.60.

Vancouver: Little change regarding export or domestic business. Western mills operating at capacity levels to take care of government and over-sea orders, nothing available for ordinary export accounts.

Domestic hard wheat flour sales steady, well above previous years. Dealers do not anticipate substantial increase in flour demand for holiday season, due to rationing of commodities used in fancy cake manufacture and scarcity of soft wheat flour. Supplies of hard wheat flour ample for current needs, with prices on a cash car basis at ceiling levels. Quotations, 98's, cottons, $5.40 for top patents, $5 for bakers and second patents, $4.90 for Vitamin B grinds.

Limited quantities of soft wheat flour coming west from Ontario mills offered to trade at $7.50, unchanged.

MILLFEED MARKETS

Quotations Tuesday, Dec. 7

Minneapolis: Market unchanged; mill output continues at a heavy rate, but output is applied to previous contracts or devoted to mills' own mixed car and mixed feed business; only occasional straight car available; prices firm at ceiling, $37.75.

Oklahoma City: Excellent demand, scant supplies; no change in prices; quotations, burlap bags, carload shipment, southern deliveries: bran, mill run and shorts $1.90@1.95 bag of 100 lbs. For northern deliveries: bran, mill run and shorts $1.85@1.90.

Omaha: No change; production large, but demand more than supplies.

Wichita: Supply less than demand; bran and shorts, basis Kansas City, $36.50.

Hutchinson: Demand active; trend firm; supply insufficient; bran, mill run, gray shorts $36.50@37.50 (Kansas City basis).

Salina: Demand exceptionally good; trend steady; supply inadequate; bran and shorts continue to sell at ceiling levels.

Fort Worth: Demand exceeds supply; trend tight at ceiling; supply inadequate; output practically all going out on mixed cars; wheat bran and gray shorts, $43.40, mixed car.

Chicago: No offerings; spring and hard winter bran, std. midds., flour midds., red dog, $40.40, jobbers' ceiling price.

St. Louis: Bran, pure bran, gray and brown shorts, $38.97@39.47; red dog, $39.47.

Toledo: Supply much below demand at ceiling levels; prospect of reduced output.

Buffalo: Week's operation practically unchanged, with large part of trade unable to fully satisfy its demand, although output continues at near capacity; trend firm; supply very light; bran, std. midds., flour midds., second clear and heavy mixed feeds, $41.55.

New York: Supply negligible; $46.06.

Boston: Supplies scarce; trade hopeful subsidies may step up production; no action on corn ceilings, while government ground wheat only half fills demand for it. A few cars of Canadian second clears reported at prices far below domestic; quotations at ceilings; spring bran, midds., mixed feed and red dog, $46.17.

Philadelphia: Demand fair; trend firm; supply light; bran, std., pure spring and hard winter, $46.34; soft winter nominal; midds., std. and flour, and red dog $45.34.

Nashville: Demand continues good; supplies still limited; prices are at ceilings, both bran and shorts $43.30@44.30.

Seattle: Supply fair; $36.50.

Portland: Mill run, bran, shorts, midds. $36.50 ton.

Ogden: Trade steady, with no change in prices. Plants working to capacity seven days per week. Quotations stationary: red brand and mill run, blended, white, midds. $36.30, carload lots, f.o.b. Ogden. Denver prices: red bran and mill run, blended, white, midds., $41.10 ton, ceiling. California prices (ceiling): red bran and mill run, blended, white, $41.10, midds. $42.10, car lots, f.o.b. San Francisco, Cal., with Los Angeles prices up $1, ceiling.

Los Angeles: Irregular offering; $47.50.

Toronto-Montreal: Sales heavy, demand is in excess of supply; shorts and midds. particularly wanted, although all bran finds a ready sale. Exports at standstill on account of scarcity of winter wheat; prices at ceiling; bran $29, shorts $30, midds. $33 ton, net cash terms, bags included, mixed or straight cars, Montreal freight basis.

Winnipeg: No change; demand keen for all available supplies and bulk from western mills moving to eastern Canada; bran $28, shorts $29, Man. and Sask; Alta. bran $25.50, shorts $26.50; small lots ex-country elevators and warehouses $3 extra.

Vancouver: Trend steady; supplies somewhat easier to obtain from western mills; domestic demand good, but not up to standard of 30 days ago due to mild winter and substantial purchases of some time ago. Dealers' stocks ample for all current needs. Prices firm at ceiling levels, and on a cash car basis are: bran $29.80, shorts $30.80, and midds. $33.80.

RYE PRODUCTS

Minneapolis and interior Minnesota: Fair sales reported, but market not as active as wheat flour. Prices stronger. Rye is only grain on which no ceiling seems to be contemplated. Shipping directions good. Pure white rye flour $3.37@3.47, in 100-lb cottons, Minneapolis; pure medium $3.27@3.37, pure dark $3.12@3.17.

Chicago: Moderate amount of business reported; sales in small lots only; directions fair; white patent rye $3.15@3.41, medium $3.05@3.31, dark $2.80@3.05.

Philadelphia: Market firm, with prices showing no important change; demand fair; offerings only moderate; white patent $3.43 @3.54.

Portland: Pure dark rye $3.76, medium $3.81, Wisconsin pure straight $4.19, Wisconsin white patent $4.32.

St. Louis: Prices advanced 3 to 4c cwt; sales slow, shipping directions fair; pure white $3.68, medium $3.58, dark $3.38, rye meal $3.49.

Buffalo: Demand good; trend firm; supply fair; white $3.60, medium $3.50, dark $3.30.

New York: Market not active; buyers, supplied for existing needs, see no reason for immediate replenishment; cheap flours out of market and price range closer; $3.60 @3.70.

SEMOLINA MARKETS

Minneapolis: Little business done in semolina since subsidy was established. Durum millers' margins are too low to permit booking, while most buyers are well covered anyway. A few here and there, who felt that a subsidy would depress the market and waited, need flour. Millers are waiting for some clarification of the subsidy rate question. Prices nominal at ceiling, Dec. 7: fancy No. 1 semolina $3.62, bulk, Minneapolis; No. 1 semolina $3.52, granular $3.44, durum fancy patent $3.62, durum flour $3.37.

In the week ended Dec. 4, eight Minneapolis and interior mills made 187,987 sacks durum products against 187,241, made by nine mills, in the previous week.

Interior Minnesota, including Duluth: Improved interest from buyers; sales good, but mills limited in amount they can book by 120-day subsidy clause; shipping directions good and mill output rate increased in past week.

Philadelphia: Offerings moderate, market rules steady, but not much activity in trade; No. 1 fancy $4.02, No. 1 regular $3.92.

St. Louis: Prices unchanged; sales and shipping directions slow; first grade semolina (ceiling price) $3.99, granular $3.81, No. 3 $3.73, fancy patent $3.99.

Buffalo: Some consternation and indignation followed granting of 6c subsidy to durum millers as against 16c to bread millers. The 6c, it was claimed, does not bridge gap between durum wheat and semolina ceilings. With wheat selling where it now is the stalemate in the trade continues; trend steady; supply ample; No. 1 $3.98, durum fancy patent $3.98, macaroni flour $3.73, first clear $3.12, second clear $2.12; all prices are nominal.

Chicago: Mills continue out of market; no business reported; directions fair.

New York: Subsidy on semolina completely inadequate to permit offerings; some of trade in considerable need of flour and awaits chance to buy.

Rye Flour Output

Following is the rye flour output reported to the Northwestern Miller by mills at Chicago, Minneapolis and outside points in the Northwest, in sacks, with comparative figures for the previous weeks:

	Week ending		
	Nov. 20	Nov. 27	Dec. 4
Five mills	33,075	*28,802	*23,919

*Four mills.

UNITED STATES VISIBLE GRAIN SUPPLY

Visible supply of grain in the United States, as compiled by the secretary of the Chicago Board of Trade, in bushels (000's omitted), of date Dec. 4, and corresponding date of a year ago:

	Wheat		Corn		Oats		Rye		Barley	
	1943	1942	1943	1942	1943	1942	1943	1942	1943	1942
Baltimore	2,026	6,402	3	983	43	12	86	92	6	3
Buffalo	7,488	7,116	445	4,775	5,482	1,619	3,034	4,910	2,015	1,149
Afloat	3,194	4,796	..	1,265	..	..	..	..	..	298
Chicago	5,499	8,840	4,704	11,256	1,396	1,588	9,047	4,118	1,340	530
Afloat	..	..	..	..	..	66	..	1,105	..	..
Detroit	..	165	..	2	..	5	..	260	..	250
Duluth	18,384	30,174	9	197	729	1,373	1,283	1,336	2,267	1,272
Fort Worth	7,523	13,377	214	202	88	114	73	13	58	37
Galveston	3,324	5,752	..	14	..	..	..	..	..	..
Hutchinson	8,564	12,318	..	..	..	..	..	..	..	..
Indianapolis	1,631	1,684	962	1,661	265	374	33	42	2	..
Kansas City	19,461	38,186	648	1,517	312	141	857	327	322	33
Milwaukee	344	1,394	216	1,732	44	89	63	661	4,356	2,326
Minneapolis	24,649	35,047	509	2,488	3,851	3,211	5,050	4,783	5,825	3,691
New Orleans	1,059	2,043	208	66	167	..	..	11	76	9
New York	320	253	13	276	40	12	2	1	..	..
Afloat	..	..	..	42	..	..	..	..	..	..
Omaha	8,240	16,871	1,509	4,708	1,727	324	318	161	936	453
Peoria	252	651	319	527	..	14	..	..	286	99
Philadelphia	1,945	2,182	162	442	49	28	84	39	8	7
St. Louis	2,759	5,163	1,527	4,094	703	245	48	1,040	294	56
Sioux City	628	2,441	168	563	132	40	48	60	247	17
St. Joseph	3,980	6,225	425	326	425	124	11	8	69	7
Wichita	3,742	8,314	..	5	70	6	..	..	31	8
Lakes	1,370	1,906	..	884	..	..	..	..	..	73
Totals	126,432	211,300	12,041	38,025	15,523	9,385	20,087	18,967	18,138	10,567

SUMMARY OF MILLFEED QUOTATIONS

Week-end millfeed quotations, summarized from the market reviews, are based on carload lots, prompt delivery, per ton, packed in 100-lb sacks, f.o.b. at indicated points:

	Chicago	Minneapolis	Kansas City	St. Louis	Buffalo
Spring bran	$....@40.40	$....@37.75	$....@....	$....@....	$....@41.55
Hard winter bran	....@....	....@....	36.50@37.00	38.97@39.47	....@....
Standard middlings*	....@40.40	....@37.75	....@....	38.97@39.47	....@41.55
Flour middlings†	....@40.40	....@37.75	36.50@37.00	38.97@39.47	....@41.55
Red dog	....@40.40	....@37.75	....@....	....@39.47	....@41.55
	Baltimore	Philadelphia	Boston	Cincinnati	Nashville
Spring bran	$49.00@50.00	$....@45.34	$....@46.17	$....@....	$....@....
Hard winter bran	....@....	....@45.34	....@....	....@....	....@....
Soft winter bran	....@....	....@....	....@....	....@....	43.30@44.30
Standard middlings*	49.00@50.00	....@45.34	....@46.17	....@....	....@....
Flour middlings†	....@....	....@45.34	....@46.17	....@....	....@....
Red dog	....@....	....@45.34	....@46.17	....@....	....@....

	Spring bran	Shorts	Middlings
Toronto	$....@29.00	$....@30.00	$....@33.00
‡Winnipeg	....@28.00	....@29.00	....@....

*Brown shorts. †Gray shorts. ‡Fort William basis.

WANT ADS

Advertisements in this department are 5c per word; minimum charge, $1. (Count six words for signature.) Situation Wanted advertisements will be accepted for 2½c per word, 50c minimum. Display Want Ads $4 per inch per insertion. All Want Ads cash with order.

HELP WANTED

SECOND MILLER WANTED

We need a first grade second miller for our mill at Newton, Kansas; permanent job; good pay; nice town of 10,000 with good living conditions. Address Midland Flour Milling Co., North Kansas City, Missouri.

MILLS WANTED

WANTED TO LEASE, WITH OPTION TO buy, a small flour mill; must be going concern and located in good wheat territory; prefer Midwest. Address 6456, The Northwestern Miller, Minneapolis 2, Minn.

MACHINERY FOR SALE

ROLLER MILLS, SIFTERS, REELS, BRAN dusters, elevators, conveyors, scourers. Schuchardt Bros., 1901 No. 2d St., Minneapolis, Minn.

90-H.P. CATERPILLAR DIESEL ENGINE; No. 1518 Carter disc oat separator; 18" Williams hammermill, 50-h.p. ball-bearing motor; 4-bbl Davis horizontal mixer; No. 2 Beall degerminator. F. W. Mann, P. O. Box 67, East St. Louis, Ill.

MACHINERY WANTED

WANTED—BRIGHTWOOD BOX MACHINE —Pneumatic scale packaging machine; two flour blenders. Address 4970. The Northwestern Miller, Minneapolis, Minn.

Milling Executives

Let Us Clarify Your Lines of
RESPONSIBILITY

We Are Specialists in the Shortest Methods on:
SALES STATISTICS
MILL ACCOUNTING
COST METHODS
PLANT PRACTICES
Write for full information.

ARTHUR L. CHANDLER & CO.
Management Counsellors
Merchants Exchange ST. LOUIS, MO.

Chickasha Milling Co.

Capacity 800 bbls — CHICKASHA OKLA. — Cable Address "Washita"
Manufacturers of High-Grade Hard Wheat Flour
Foreign and Domestic Trade Solicited
Member Millers' National Federation

The BEARDSTOWN MILLS

SPRING WHEAT
KANSAS WHEAT
SOFT WHEAT
FLOURS
CRITIC FEEDS
SCHULTZ, BAUJAN & CO.
BEARDSTOWN, ILLINOIS

"Golden Loaf" That's Our Brand—
The Flour with the Doubt and Trouble left out
TENNANT & HOYT COMPANY
Lake City, Minn.

The Moundridge Milling Co.

FAMILY FLOUR — BAKERY FLOUR
CRACKER FLOUR
SPECIALTY PRODUCTS
General Offices: MOUNDRIDGE, KANSAS

AVAILABLE TO MILLERS AND BAKERS

A new brochure, "Science at Your Service," has been prepared for executives, technologists and others in the food field. War times present many new problems. New ingredients, new formulas—vitamin retention, enrichment and control. This brochure describes the facilities of our organization in helping you meet these problems. It is available upon request.

FOOD RESEARCH LABORATORIES, INC.
48-14 Thirty-Third St., Long Island City, N.Y.
Over 20 years' service to industry

WESTERN STAR
KANSAS STAR
GOLDEN CREST

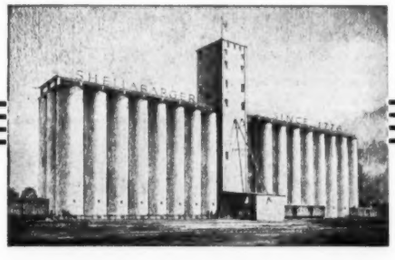
★ ★

A fine flour for every baking day
Some bakers like one of them
Some prefer another

One of the three will
exactly fit your formula
and your purse.

★ ★

The WESTERN STAR MILL CO.
SALINA • KANSAS



NOW THAT WE HAVE A SUBSIDY
Country Run Salina District Wheat Is Still Available on Direct Shipment to Every Miller in the Country . . . .

The same careful attention to type, protein standard and uniformity of blends that we give to wheat for our own milling—at no extra cost to you.

SHELLABARGER MILLS
3,500,000 Bushels Country Storage
SALINA, KANSAS

OATMEAL MARKETS

Toronto-Montreal: Normal business in rolled oats and oatmeal in domestic markets. Export trade, however, at low point. Prices unchanged. Quotations Dec. 4: rolled oats $3.15 per bag of 80 lbs, cotton, in mixed cars; oatmeal, in 98's, jute, $3.85 bag, Toronto or Montreal.

Winnipeg: Demand for rolled oats and oatmeal fairly good, but weather still too mild for active demand; no accumulation of supplies. Quotations Dec. 4: rolled oats, in 80-lb sacks, $3.25 in the three prairie provinces; oatmeal, in 98-lb sacks, 20% over rolled oats.

Minneapolis: Rolled oats were quoted on Dec. 6 at $5.50 per 100 lbs, bulk; 20-oz packages $2.20 case, 48-oz packages $2.35.

Western Canada Visible Grain Supply

Visible supply of grain in the western inspection division Dec. 3, 1943, and receipts and shipments during the past week, in bushels (000's omitted):

Fort William and Port Arthur—	Wheat	Durum	Oats	Barley
Semi-public terminals	14,246	1,477	2,485	2,144
Private terminals	..	..	52	8
Totals	14,246	1,477	2,537	2,152
Vancouver-New Westminster	16,543	..	116	64
Int. public and semi-public elevators	11,652	..	129	106
Churchill	1,877	..	..	..
Victoria	1,027	..	..	..
Prince Rupert	1,210	..	..	..
Totals	46,555	1,477	2,782	2,322
Year ago	130,137	491	8,199	8,985
Receipts during week—				
Ft. Wm.-Pt. Ar.	8,784	291	902	228
All other public and semi-public terminals, western div.	310	..	63	41
Totals	9,094	291	965	269
Shipments during week—				
Ft. Wm.-Pt. Arthur—				
Lake	19,034	191	948	2,441
Rail	129	11	236	116
All other public and semi-public terminals, western div.	874	..	45	35
Totals	20,036	202	1,229	2,592
TOTAL RECEIPTS Aug. 1-Dec. 3, 1943				
Ft. Wm.-Pt. Ar.	95,154	2,443	21,532	18,310
All other public and semi-public terminals, western div.	3,970	..	675	382
TOTAL SHIPMENTS Aug. 1-Dec. 3, 1943				
Ft. Wm.-Pt.Ar.	135,901	2,347	27,384	24,114
All other public and semi-public terminals, western div.	8,649	..	527	353

United States Grain Stocks

Commercial stocks of grain in store and afloat at the principal markets of the United States at the close of the week ending Nov. 27, 1943, and Nov. 28, 1942, as reported to the United States Bureau of Agricultural Economics, in bus (000's omitted):

	American		Canadian in bond	
	Nov. 27 1943	Nov. 28 1942	Nov. 27 1943	Nov. 28 1942
Wheat	156,903	259,487	14,670	16,532
Corn	11,705	40,734	...	...
Oats	18,995	10,451	878	2,737
Rye	21,051	19,761	2,295	992
Barley	23,330	12,154	920	205
Flaxseed	8,843	4,216	2,744	...

Stocks of United States grain in store in Canadian markets Nov. 27 (figures for corresponding date a year ago given in parentheses): wheat, 237,000 (86,000) bus; corn, 147,000 (3,541,000); oats, none (none); rye, none (24,000).

Bonded Grain in the United States

Bonded grain in the United States Dec. 4, in bushels (000's omitted):

	Wheat	Oats	Rye	Barley
Baltimore	2,284	..	..	..
Boston	802	..	..	..
Buffalo	1,635	675	271	376
Afloat	5,142	..	..	208
Chicago	87	..	509	..
Afloat	1,351	..	3,242	..
Duluth	3,025	..	..	215
New York	1,589	..	..	..
Afloat	472	..	..	..
Philadelphia	602	..	..	..
Lakes	1,204	..	..	224
Totals	18,193	675	4,022	1,023
Nov. 27, 1943	13,303	745	1,900	826

Millfeed Receipts and Shipments

Receipts and shipments of millfeed at the principal distributing centers for the week ending Dec. 4, in tons, with comparisons:

	Receipts		Shipments	
	1943	1942	1943	1942
Minneapolis	...	...	20,910	11,010
Kansas City	575	2,400	3,775	5,300
Philadelphia	320	380	...	...
Milwaukee	...	...	3,690	2,460

FLOURS
THAT ARE A SHOP-WORD FOR QUALITY . . .
▲ OCCIDENT
▲ PRODUCER
▲ SUNBURST
▲ SWEET LOAF
▲ KYROL
▲ POWERFUL
THERE'S A RUSSELL-MILLER FLOUR FOR EVERY BAKING PURPOSE
RUSSELL-MILLER MILLING CO.
MINNEAPOLIS, MINNESOTA

Better flour for Baker, Jobber and Grocer....
"HAVASAK"
•
SECURITY FLOUR MILLS CO.
Operating SECURITY and MID-WEST Mills
W. A. CHAIN, Mgr. ABILENE, KANSAS

THE WALNUT CREEK MILLING CO.
Millers of Fine, Country-Milled Kansas Wheat Flours
Since 1877
GREAT BEND, KANSAS

DOBRY'S BEST
BEST OF THE WEST
DOBRY FLOUR MILLS, Inc.
YUKON, OKLAHOMA

"RUSSELL'S BEST"
"AMERICAN SPECIAL"
Our mill is located in the high protein wheat district of central western Kansas, and secures most of its wheat directly from growers.
RUSSELL MILLING CO., Russell, Kansas

King Milling Company
High Grade Michigan Soft Wheat Flour, Plain and Self-Rising
Successful Millers for Fifty Years
LOWELL, MICHIGAN

Hart-Bartlett-Sturtevant Grain Co., Inc.
Line country houses in five states
Terminal houses at Kansas City and St. Joseph
Kansas City, Mo.

PAGE'S FLOURS
THE THOMAS PAGE MILL CO.
Topeka, Kansas

Centennial Flouring Mills Co.

NEW SPOKANE MILL... MOST MODERN IN THE WORLD

GENERAL OFFICES: 814 SECOND AVENUE BUILDING
SEATTLE, WASHINGTON

DOMESTIC and EXPORT MILLERS

6,000,000 BUSHELS
COUNTRY AND TERMINAL STORAGE

GOLD DROP *PIE and COOKIE FLOUR*
PYRAMID *CONE FLOUR*
CENTENNIAL *CAKE FLOUR*

DEALERS IN
ALL TYPES OF PACIFIC NORTHWEST WHEAT

MILLS AT TACOMA • SPOKANE • WENATCHEE • RITZVILLE • PORTLAND

AMES HARRIS NEVILLE CO.
PORTLAND, ORE. SAN FRANCISCO, CAL.
BURLAP AND COTTON BAGS AND SEWING TWINE

CROWN MILLS
PORTLAND, OREGON

"THE FLOUR SUPREME"

Millers of High Grade Bakers, Family and Export Flours.

PRESTON-SHAFFER MILLING CO.
MERCHANT MILLERS
ESTABLISHED 1865

SOFT WHITE WINTER WHEAT FLOUR A SPECIALTY

Also Choice Blue-Stem and Hard Spring Patents

WE INVITE EXPORT CORRESPONDENCE

General Offices: WALLA WALLA, WASHINGTON
Mills at Waitsburg, Washington, Freewater, Oregon, and Athena, Oregon—Daily Capacity, 3,000 Bbls
Atlantic Coast Office, RAYMOND F. KILTHAU, Produce Exchange, New York.

WESTERN MILLING CO.
MONTANA SPRING WHEAT PATENT
BLUESTEM—PATENT
FINEST SOFT WINTER WHEAT PATENT
General Offices: Walla Walla, Washington Mill at Pendleton, Oregon

---

Fisher's FOR UNIFORM FLOURS

The largest and most modern flour mill and elevators on the Pacific Coast with storage capacity at our mills of 2,500,000 bushels, together with more than one hundred elevators and warehouses in the choicest milling wheat sections of Montana, Idaho and Washington, insure the uniformity of all Fisher's Flours.
FISHER FLOURING MILLS CO., SEATTLE, U.S.A. Domestic and Export Millers
CLIFF H. MORRIS & CO., Eastern Representative, 25 Beaver Street, New York City

---

Export Flour Insured ALL RISKS by

The Sea Insurance Co., Ltd.
of LIVERPOOL

U. S. Branch Assets.....$4,904,187
Capital Deposited in U. S.....500,000
Surplus for Protection of Policyholders.....2,930,199

ORIGINATORS OF ALL RISKS
Insurance on Flour
Policies of this Company are held by all leading millers

CHUBB & SON
United States Managers
90 John Street - - New York
Insurance Exchange - Chicago
Hurt Building - - Atlanta, Ga.
Royal Bank Building - - Montreal

COLLINS FLOUR MILLS, Inc.
PENDLETON, OREGON
Millers of Export and Domestic Flours
Daily Capacity, 1,000 Barrels
Correspondence Solicited

For more than 40 Years Millers of Quality Flours

WINGOLD FLOUR

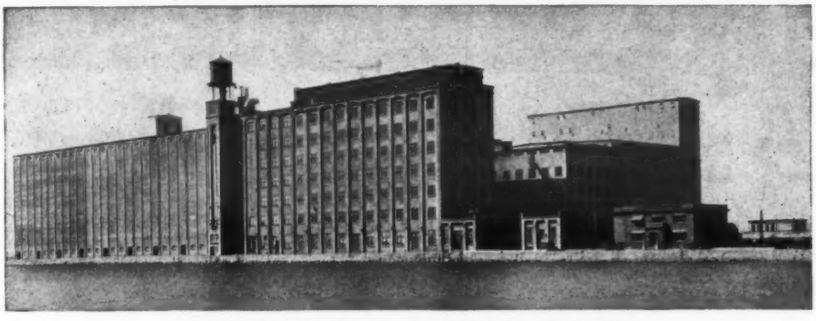
WINONA FLOUR

These Brands Are Absolutely Dependable. Why Take Chances with Cheap Flours?

BAY STATE MILLING CO.
MANUFACTURERS OF
HARD SPRING WHEAT & RYE FLOURS
WINONA, MINNESOTA

CANADA'S LARGEST FLOUR EXPORTERS

Head Office— Toronto, Ontario



Cable Address— "Mapleshaw," Toronto, Canada

PORT COLBORNE MILLS—CAPACITY 12,000 BBLS. DAILY

Maple Leaf Milling Co. Limited.

EXPORT OFFICES:
TORONTO NEW YORK VANCOUVER

MILLS AT
TORONTO, ONTARIO MEDICINE HAT, ALBERTA PORT COLBORNE, ONTARIO

BY APPOINTMENT TO HIS LATE MAJESTY KING GEORGE V.

Canada's oldest and largest Millers

BRANDS:

Flour

"ROYAL HOUSEHOLD"
"GLENORA"
"FAMOUS"
"BUFFALO"

Cereals

"OGILVIE OATS"
"WHEAT HEARTS"
"OGILVIE BLENDIES"

THE OGILVIE FLOUR MILLS COMPANY, LIMITED
HEAD OFFICE, MONTREAL, CANADA

Mills at:
Montreal, Fort William, Winnipeg, Edmonton and Medicine Hat
Cable Address: OGILVIE, MONTREAL. All codes used.

SPILLERS LIMITED

Millers of the
HIGHEST QUALITY FLOUR
and Manufacturers of
PROVENDER AND BALANCED RATIONS
FOR ALL CLASSES OF FARM STOCK

Head Office:
40, St. Mary Axe, E. C. 3.
LONDON, ENGLAND

Cables:
"Milligroup"
London

LAKESIDE MILLING COMPANY, Ltd.

"BLOSSOM *of* CANADA" "YORK" "NORDIC"
Cable Address: LAKESIDE TORONTO, CANADA

TORONTO ELEVATORS LIMITED

Grain and Feed Merchants

4 Million Bushel Elevator—Toronto
3 Million Bushel Elevator—Sarnia

TORONTO, CANADA

R. C. PRATT
Exporter
FLOUR, CEREALS, FEEDS
68 King Street, East
TORONTO, CANADA

Export Flour INSURANCE

"All Risks"

Special Service to Flour Mills on Export and Domestic Ocean and Lake Insurance and Transportation

Thirty-Five Years' Experience in Export Flour Handling

Western Assurance Company
TORONTO, CANADA

F. C. THOMPSON CO., LTD.
Canadian Agents
Royal Bank Bldg., Toronto, Canada

APPLETON & COX, INC.,
American Agents
111 John Street, New York

CHOICEST CANADIAN *Hard Spring Wheat*

and perfect milling facilities have placed our products in the van.

BRANDS

"VICTORY" - "PRAIRIE BLOSSOM"
"WOODLAND" - - "HOMELAND"

THE DOMINION FLOUR MILLS, LTD.

Cable Address: "DOMFLOUR" MONTREAL, CANADA

QUALITY UNIFORMLY MAINTAINED SINCE 1887

Lake of the Woods Milling Co., Limited

Cable Address
"HASTINGS"
Montreal

ALL
CABLE CODES
USED

Makers of CANADIAN HARD SPRING WHEAT *Flour*

Owning and Operating
Wheat-Receiving Elevators in Manitoba, Saskatchewan and Alberta

Mills at
Brantford, Keewatin, Medicine Hat

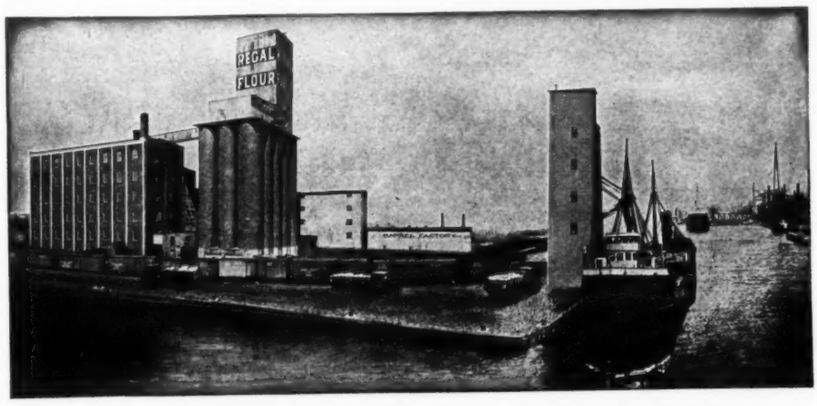
HEAD OFFICE: MONTREAL WESTERN OFFICE: WINNIPEG

Offices:

TORONTO, OTTAWA, QUEBEC, ST. JOHN, N. B., HALIFAX, HAMILTON, BRANTFORD, SUDBURY, LONDON, SAULT STE. MARIE, FORT WILLIAM, KEEWATIN, MEDICINE HAT, PORTAGE LA PRAIRIE, CALGARY, MOOSE JAW, REGINA, EDMONTON, VANCOUVER, VICTORIA

The St. Lawrence Flour Mills Co., Ltd.

MONTREAL • CANADA



Millers of Canadian
Hard Wheat Flours

"Regal"
"Fleur de Lis"
"National"
"Daily Bread"
"Citadel"

Quality uniformly maintained for over 25 years

JUTE BAGS COTTON

OLDEST ESTABLISHED MANUFACTURERS OF

JUTE **BAGS** COTTON

IN CANADA

Factories—MONTREAL - TORONTO

The CANADIAN BAG CO., Limited

Head Office: MONTREAL, QUEBEC

JUTE BAGS COTTON

Since 1857

James Richardson & Sons

LIMITED

Grain Merchants Shippers and Exporters

WINNIPEG · CANADA

Export Offices - MONTREAL and VANCOUVER

Cable Address: "JAMESRICH"

GREAT STAR FLOUR MILLS, Ltd.

Successors to Wolverton Flour Mills Co., Ltd.

Canadian Spring and Winter Wheat Flour

"SILVERKING" "GREAT STAR" "WOLF" "KEYSTONE"

Cable Address: "WOLMACS" ST. MARY'S, ONTARIO, CANADA

The ALBERTA PACIFIC GRAIN COMPANY LIMITED

468 Country Elevators

Terminal Elevator Capacity, 9,461,500 Bus.

Grain Exchange, Winnipeg

Canadian Hard Spring Wheat

450 Elevators in Manitoba, Saskatchewan and Alberta.

High Test Country Run

United Grain Growers, Ltd.
Winnipeg, Manitoba

WESTERN CANADA FLOUR MILLS COMPANY LIMITED

CABLE ADDRESS: LAKURON

TORONTO, CANADA

SPECIALISTS IN MILLING

PURITY THREE STARS

STERLING CANADA CREAM

GREAT WEST • BATTLE • MAITLAND • HURON

All Western Canada Hard Wheat Flours

FLOUR MILLING CAPACITY 9,500 BBLS DAILY

ROLLED OATS AND OATMEAL 400 BBLS DAILY

UNIFORM QUALITY GUARANTEED

Feeds and the Colleges

(Continued from page 27.)

used. These small mixers are not going to be eliminated, but if they do not have the knowledge or facilities or integrity to make nutritionally adequate feeds and to perform the service and educational functions that properly should be a part of the feed business, the mixed feed industry cannot realize its maximum potential benefit to agriculture; nor can the teachings and the findings of the research workers be given as readily and as economically to the vast number of widely scattered feeders. To the extent that the small mixer is incompetent, the reputation of the mixed feed industry will suffer, in the opinion both of feeders and other agricultural groups.

The suggestion in this, which is made primarily with the hope of stimulating other thoughts on the subject, is that some procedure should be established for regular and frequent discussions and exchange of critical and constructive opinions between the feed industry and such institutions as the agricultural colleges and experiment stations. Some of the contacts should be personal, in the form of conclaves or conventions. Participation should be as wide as possible among both groups. The purpose should not be to sell more mixed feeds, but to work together to benefit agriculture and, especially, food production.

I believe that such organizations as the American Feed Manufacturers Association and the Grain & Feed Dealers National Association could co-operate successfully in setting up such a project in conjunction with the institutional colleges. From a few conversations I have had with representatives of the latter, I believe the move would be welcomed by them, providing that the commercial aspect is not allowed to dominate.

The great mass of farmers, as individuals, cannot and will not absorb the rapid developments in nutrition, coming from so many sources, and apply them practically in anything like so short a time as it can be accomplished through the feed industry. In many instances, in fact, the individual farmer would find it difficult if not impossible to apply them at all, for he does not have the facilities or resources to do so. The research man and the feed man are working on the same job, and they should work together.

——BREAD IS THE STAFF OF LIFE——

JOHN L. DOWER INVENTORY FILED

DENVER, COLO.—John L. Dower, former president of the Colorado Milling & Elevator Co., who died last June 26, left an estate of $777,141.18, which was $77,000 more than the preliminary estimate revealed, it was disclosed recently with the filing of the estate inventory in County Court. Mrs. May Mullen Dower, his widow, is sole heir under Colorado law, as he left no will. She is the daughter of the late J. K. Mullen.

——BREAD IS THE STAFF OF LIFE——

FEED MILL OPENED

DELAVAN, WIS.—John Wahinney, Darien, and Fred Teetshorn, Whitewater, who purchased the Sage-Fifield Lumber Co., several months ago, have reopened the business as Wahinney & Teetshorn, carrying a complete line of millfeeds and operating a grinder and mixer service.

COATSWORTH & COOPER
LIMITED
C A N D
Grain and Feeds
Exporters
TORONTO, CANADA

"OLD SQUIRE"
Always is good flour. Pays no attention to ups and downs and this and that.
Just always GOOD FLOUR
Moore-Lowry Flour Mills Co.
Board of Trade Bldg. Kansas City, Mo.

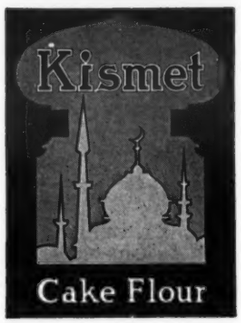
CEREAL CUTTERS
Kipp-Kelly Rotary Granulators
Standard the world over for cutting small grains, wheat, hulled oats, etc.
KIPP-KELLY LIMITED
Winnipeg, Manitoba, Canada

"Sasnak Flour"
For Discriminating Eastern Buyers
ENNS MILLING CO., Inman, Kan.

Evans Milling Co.
INDIANAPOLIS, IND., U. S. A
Manufacture Kiln-Dried WHITE CORN PRODUCTS
Capacity, 16,000 Bushels

Carefully Selected—Country-Run
MILLING WHEAT
Direct Shipment to Millers Anywhere
EBERHARDT & SIMPSON GRAIN CO.
SALINA, KANSAS

Garland Milling Co.
Pure Soft Winter Wheat Flour
GREENSBURG, IND.

FOR BAKERS


Quality Cake Flour of the Best
NOBLESVILLE MILLING COMPANY
INDIANAPOLIS, INDIANA

Coast To Coast Grain Service
CARGILL
INCORPORATED
Minneapolis and All Principal Grain Markets
WHEAT
WINTER
SPRING
DURUM
• • •
By the
TRUCK-LOAD
CAR-LOAD
BOAT-LOAD
• • •
Any Where
Any Time

"ROCK RIVER" RYE "OLD TIMES" BUCKWHEAT
"BLODGETT'S"
RYE
All Grades—From Darkest Dark to the Whitest White
—Specially Milled by the Blodgett Family—Since 1849
FRANK H. BLODGETT, Inc., Janesville, Wisconsin

LIBERTY FLOUR
GEORGE URBAN MILLING CO., Buffalo, N. Y.

CANADIAN-BEMIS BAG COMPANY, LIMITED
WINNIPEG • VANCOUVER
Successors to
THE CANADIAN BAG CO. LIMITED OF WINNIPEG & VANCOUVER
and
BEMIS BRO. BAG COMPANY, WINNIPEG
Manufacturers and Importers
COTTON BAGS

JUTE BAGS
BURLAPS AND TWINES
Paper Bags for Sugar, Cereals, etc., manufactured at Vancouver plant

ROBIN'S BEST FLOUR
The ROBINSON MILLING COMPANY
SALINA, KANSAS
ACCEPTED AMERICAN MEDICAL ASSN.

ARCHER-DANIELS-MIDLAND COMPANY
J. M. CHILTON, Mgr. Grain Dept.
GRAIN MERCHANTS
Milling Wheat and Coarse Grains
MINNEAPOLIS
MILWAUKEE, WIS.
BUFFALO, N. Y.
KANSAS CITY, MO.
SAN FRANCISCO, CAL.
OMAHA, NEB.
PORTLAND, ORE.
DULUTH, MINN.

STRATTON GRAIN COMPANY
GRAIN AND FEED MERCHANTS
MILWAUKEE, WISCONSIN
CHICAGO, ILL. ST. JOSEPH, MO. NEW YORK, N. Y.

CONFUSING

A poor Jew succeeded in escaping from Nazi-occupied Vienna to his relatives in Budapest. His relatives eagerly questioned him about the things he had witnessed in Nazi Vienna. He told long stories about the atrocities of the Gestapo. But suddenly he interrupted his story.

"You don't even ask me what happened to Uncle Sammy!"

"Well, what happened to Uncle Sammy?"

"Don't ask!"

HOP HOP

Irvin.—I hope you'll pardon my dancing on your feet—I'm a little out of practice!

Emma.—I don't mind your dancing on them—it's the continual jumping on and off that gets me!

NO CHANCE

"See that couple there? They've been sitting for hours, and not a word has passed between them."

"No wonder, seeing how close they sit!"

FIRST AND LAST

Patient (despondently)—You know, doctor, this is my first illness.

Doctor (cheerfully)—Well, let's hope it will be your last.

ABSENT-MINDED PROFESSOR AGAIN

The nurse entered the absent-minded professor's room and said softly: "It's a boy, sir."

Professor.—Well, what does he want?

A liar is one who has no partitions between his imaginations and his informations and his affirmations.

CYCLOPS

"I'm looking for a man with one eye."

"Well, if he's a very small man, wouldn't it be better for you to use both of them?"

SMOTHER GIRL

"She's one of those smother girls."

"What's a smother girl?"

"One that says, 'Sorry. See you smother time.'"

KNEW THE SIGNS

He—You look lovelier to me every minute. Do you know what that means?

She—Yes, the car is about to run out of gas.

RECESS

She—Will you ever stop loving me?

Sergeant — Well, I'll have to be at reveille by 6 o'clock in the morning.

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